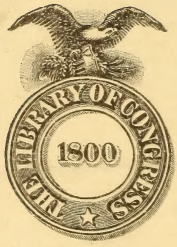
Feeding and Nursing the Baby

DOUGLAS



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A TREATISE

ON

Feeding and Nursing the Baby

FOR MOTHERS AND NURSES

BY

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TO

THE MANY

MOTHERS AND NURSES

WHO HAVE WORKED AND WORRIED WITH ME DURING THE

LAST THIRTY-SIX YEARS

This volume is inscribed

IN PARTIAL RECOGNITION OF THEIR FAITHFULNESS

IN CARRYING OUT MY DIRECTIONS;

AND ALSO

IN GRATITUDE TO THEM FOR THE MANY FACTS AND SUGGESTIONS

THEY HAVE, DURING ALL THESE YEARS, GIVEN TO THE

AUTHOR.

IT WAS ONLY THROUGH SUCH COMBINED

LABOR THAT THIS VOLUME HAS

BEEN MADE POSSIBLE.

Twentieth Century Medical Progress.

"*Let us hope, Doctor, that this Twentieth Century will be a children's century; and that in it there will be as great progress in children as there was in women during the last one. May there be the wonderful advancement in feeding, developing, and raising strong, healthy, vigorous boys and girls, that was shown in women physically, socially, and commercially, thus elevating them in their brothers' eyes to a wider and more equal sphere.*"

Such was the outpouring of a sorely tried and grateful mother, on the morning of January 2, 1901, as I left her home after my last visit to her little convalescent son. His life had been nearly sacrificed to the luxuries of the Christmas table during the previous week.

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PREFACE.

THE object of this volume is to assist mothers and nurses to realize the proper means, and also all of those means requisite to raise strong, well-developed children.

Coupled with this knowledge is the necessity also of using it at the proper time before the infants are damaged by errors in their dietary or management.

As there are all varieties of babies, one of the main objects of the writer is to show in each, by their daily progress, that the resulting growth and development will be satisfactory.

To many physicians who have not had the opportunity of seeing much infantile sickness, and consequently given little attention to this subject, it is hoped that this work will be an assistance.

For medical students also, who have little experience in witnessing the trying results of the heated term on infantile life, it is thought the subjects herein discussed may lend some assistance in the early years of professional life.

The rapid advances made in feeding and nursing infants during the past ten years, have established fixed and reliable principles for the guidance of nurses and parents, instead of the old inherited haphazard ideas which resulted too often in culls, or the survival of only the most vigorous.

It has been the object of the author to follow in these pages such methods in presenting facts as continual contact with mothers for the last thirty-six years has been found a necessity. This has demanded a frequent repetition of the main facts in sickness and treatment, and also of how to secure the best results under the many different conditions present in feeding and nursing healthy and sickly infants.

The short notes on these pages impressing the main

facts, coupled with frequent repetition in the text, will, it is hoped, be partially successful in simplifying the mother's and nurse's work.

It has been deemed requisite to commence before birth, that the conditions for the proper nutrition of the infant may be as perfect as possible when it is born.

Chapter I is thus given to PREGNANCY, and Chapter II to the MOTHER.

Chapters III, IV, V, VI and VII consider the different foods, their preparation, and the feeding of the infant.

Chapters VIII, IX and X are devoted to the development and care of the baby, and also facts concerning it.

Chapter XI is given to the general principles of home infantile nursing and treatment in mild sicknesses.

Chapter XII is occupied in considering the prominent symptoms present in diseases, and their value when estimating the dangers of any sickness.

The next five chapters aim to give the mother a short and concise idea of the most common infantile diseases, their important symptoms and general treatment till the physician is in charge.

The last, Chapter XVIII, is devoted to the preparation of foods, to internal and external medicinal remedies, to poisons, doses, measuring, and also to the medicine closet.

As it has been necessary for the author to use the works of leading medical writers for the last twenty years, in teaching these subjects to medical students and the nurses in the Farrand Training School, so has it been requisite to utilize the same material in the following pages, so far as needed for the mother's and nurse's benefit. As it would be impossible to give credit to each individual author, the writer wishes here to acknowledge his indebtedness to the works of American, British, German, and French physicians.

For valuable advice in construction and for reviewing, he is especially grateful to Dr. Don. M. Campbell of Detroit, and also to his daughter, Kathleen J. Douglas. Only by their valuable assistance has this work been completed.

CHAS. DOUGLAS, M. D.

CHAPTER I.

The Pregnant Woman.

Pregnancy is the summit of the wife's hopes and joys. It is the realization of the female mind's most impressive probability. With some it is the commencement of nine months' continual sickness; with most it is heralded by nausea for a few weeks and followed by the best of digestion and good health for the balance of the term; while with a few it is welcomed as the healthiest and most comfortable part of their lives.

The young woman naturally feels that this changed condition demands attention and respect. Her mind always turns to necessary changes in her duties and exercises. With some it also seems necessary to change their dietetic regimen and mental occupation. A little thought will show the reasoning mind that nature cannot demand any change from reasonable activity, dietary, or mental occupation, which are the foundation of good health for all mankind. If such change were demanded, it would say that healthy conditions for a woman this month may or will be unhealthy conditions for her next month; in other words, the pregnant woman is a different creature simply because she is pregnant, and therefore requires a different mode of life; or what makes healthy blood for the mature being makes unhealthy blood for the embryonic being. Such reasoning is evidently absurd and contrary to all the laws of nature. In the

thirty-six years the writer has attended women in the pregnant condition, he has only met an occasional woman whose mind was so warped and twisted by her education, reading absurd writings on this subject, or a desire to bring forth a superior being, that she would willingly impose upon herself a nine months' fast from necessary nourishment and also a wardrobe of sackcloth and ashes.

A lady of good health consulted me recently for advice as to diet, conduct, exercise, etc., now that she was pregnant. My advice to her was: "Do nothing; forget, if possible, that you are pregnant and continue your usual habits." Only the extreme things, mental, physical, and dietetic, are at war with the pregnant condition, therefore a pregnant woman should avoid the chances of such extremes. That means avoid the possibility of an accident, a shock, or an indigestion which might result in a diarrhea. Most women pay no attention even to these possibilities, and few have to regret it. Even those who are most careful at times meet with trouble.

During pregnancy many women endure unnecessary suffering and distress. They do this mainly because they have an exaggerated idea of the endurance needed at this time to bear unavoidable miseries. I find that this mistaken idea does serious injury occasionally. Now, as at other times, a woman should not try to endure suffering. While she may be willing to suffer annoyances and petty disturbance, she should have these only for short periods, and the intervals between should be those of comfort and perfect relief. There are also features unavoidable, due to the changes of size as pregnancy progresses. These must be endured.

Frequent Urination.

This is one of the first changes noticeable in pregnancy. This commences early, even in the first month often, and continues throughout the whole nine months. It is due to the pressure exercised on the bladder by the gravid uterus. Even in this unavoidable disturbance the mother should not be too patient. If urination is painful she should seek help from her physician. As it is always worse when standing, the recumbent position for a day or two generally relieves the painful symptoms. Alkaline or soda water drinks often assist materially in relieving this pain; so also do mucilaginous ones, such as flaxseed and slippery elm tea.

Hæmorrhoids or Piles.

These commonly appear at this time also. They are due to pressure on the blood vessels, and remain usually, in varying severity, till labor relieves the pressure. These patients generally suffer a great deal right after labor from the swollen and tender condition of the piles, caused by the pressure to which they have been subjected during labor. Either hot or cold applications, whichever are most soothing, should be applied while lying down to give relief during pregnancy. Only hot ones are admissible after labor. Particular attention should always be given to secure one soft stool every day, but not any more in these cases. Either constipation or too loose stools aggravates the soreness of piles. Were it not for the disagreeable gases produced by sulphur, there is no remedy which secures such comfortable stools in these cases. Some form of laxative (Remedies, No. 40) or mineral water should be taken regularly each morning, such as Hunyadi or Friedrichshall. Only enough to

secure one stool daily must be the rule. Where piles project outward after stool, they should be oiled and returned at once by gentle pressure. If very painful an anodyne ointment (Remedies, No. 85) should be used to relieve the suffering when heat fails to make the parts comfortable.

Neuralgia.

Many mothers date the rapid decay of their teeth to the time of their first pregnancy. With this loss also comes most distracting neuralgia and frequently profuse flows of saliva or hot water from the mouth. Unfortunately these are not curable, but are generally relieved by hot applications to the face, and some stimulating wash, such as hot listerine or tincture of myrrh and water, equal parts, in the mouth. A dentist should be consulted early and all mild means used to check this rapid decay of the teeth. Women in this condition should not undertake any severe dental operations.

Leucorrhea.

Some women suffer from severe leucorrhea at this time. It may last only a few weeks, or it may continue for many months. Mild washes of boric acid, two teaspoonsful to the pint of warm water, should be used lying down once or twice daily for cleansing purposes and to avoid bad odors. This should be done with a fountain syringe (Figure 1). The largest nozzle should be carefully inserted the full distance in the vagina, and a slow stream of a

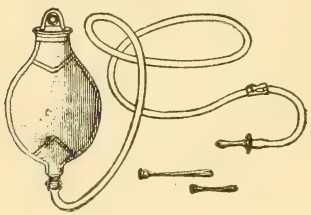

Figure 1. Fountain Syringe.

quart at least allowed to run through from a height of not more than three feet above the patient.

Miscarriage.

A woman who has miscarried once is likely to do it again about the same time. This occurs most commonly about the menstrual date in each month. At such time she should be very quiet physically, or even stay in bed till this uncertain time passes by. A woman who miscarries twice in succession is likely to continue doing so every few months, thus undermining her health. Only a long rest of two or three years will enable that uterus to carry a child to full term.

Syphilis.

Women afflicted with this disease will conceive and miscarry regularly. The fœtus dies of the poison at any age from two to nine months, and nature casts it out. When dead it is a foreign substance. After a few years the poison lessens in the mother's body, and she may then carry a fœtus to the full term; medical treatment will help her condition.

Stools.

The pregnant woman should see that her bowels move regularly every day, or two days at most. Where costive she should aim at securing this result by a diet of oatmeal and fruits and by exercise. Certainly, she should, if possible, avoid using cathartics, as these frequently cause miscarriage. Where it becomes a necessity to take a cathartic she should avoid aloes or aloin. Whatever medicine she selects it should be such a one as acts mildly and should be taken in three or four small doses, rather than in one large dose. Laxative salts (Remedies, No. 40) may be used with advantage.

Nausea.

The nausea of pregnancy is not always amenable to medical treatment, but most cases are improved by a little medicine, such as essence of pepsin or soda mint tablets. Where severe and the patient loses flesh, she should take her breakfast in bed and then rest an hour before rising. If not relieved a physician should be consulted. This usually passes away in a few weeks.

Quickening.

This is the first strange movement the mother recognizes, and she thinks it due to the child. It occurs usually at about four and a half months, and is ascribed to the child, or the necessary rising of the enlarged womb, out of the bones of the pelvis, to where there is greater room for its growth.

Varicose Veins.

Many women suffer from enlarged veins in one or both legs during pregnancy. These are the superficial veins, and they become very large and tortuous, often causing pain and aching when these women are long on their feet. This is always relieved by lying down. These veins show most frequently toward the end of pregnancy, but beyond their inconvenience are not important, as they seldom bleed. When very sore, elevating the limbs and bandaging them give the greatest relief.

Edema.

The most important and serious accompaniment during pregnancy is swelling of the feet and limbs, during the last month or two. This is due to water under the skin in the connective tissues, and is very common indeed, often preventing a woman from wearing any

shoes. This swelling may be due to the pressure of the uterus on the veins, thus damming back the blood in the lowest parts; or it may be due to defective secretion of urine. This latter cause is the important one and the one requiring prompt attention. In all cases of swelling of the limbs the physician should be called at once, and a sample of the urine bottled for his examination. Regular examination of the urine will be requisite every week or two afterwards to ascertain the condition of this secretion and that of the kidneys. This must never be omitted, as the mother's life is often in jeopardy, when she recognizes little sickness or inconvenience from this swelling. Inefficient kidney secretion is the most serious complication accompanying pregnancy.

Puerperal or Child Bed Fever.

This is due to the entrance of some poisonous infection into the blood through the genitals, either at the time of labor or shortly afterwards. This is very dangerous to the mother's life, but usually can be avoided through absolute cleanliness of all clothing and thorough disinfection of all attendants, particularly the hands of nurse and physician. All clothing and dressings around the mother should be fresh from the laundry; and all syringes and other instruments needed should be thoroughly scalded to give her the greatest protection possible. No nurse except a thoroughly trained, conscientious one is safe in such a situation, and no examinations of the patient should be made except by her physician, or her trained nurse in an emergency. The life of a woman is often sacrificed by an old catheter, syringe, or a dirty septic dish, cloth, or hand. Herein lies the greatest danger of the old fashioned, uneducated nurse or midwife, as she does

not know the dangers of sepsis and unconsciously often carries death to the mother by her unclean hands.

Abdominal Growth.

The pregnant woman should not be ashamed of her increasing size, and certainly should never tighten her clothes to hide it. She needs loose clothes always, to give room for the infant's growth, and to allow the performing of regular daily duties to give her that good digestion which secures strength of muscle and heart, thus preparing her for the strain of approaching labor. Those who are sedentary become soft of flesh and correspondingly weak, and too often fail when labor pains seize them. They then have to depend on instrumental aid too much. No woman has such a good labor as the active, busy, hustling one.

Signs of Pregnancy.

These are very important features in the early years of married life. The young wife, yes, and sometimes the old wife, is intensely interested in this subject. No day in the month is of half the importance to the wife, as the menstrual day. And why should it not be so? Its absence means an immense amount to her; more indeed than the young wife realizes in most instances. The one prominent thought in her mind is "pregnancy." So we find the first and most reliable evidence of pregnancy is absence of menstruation in a healthy woman. While this does not always apply, it is generally reliable.

Absence of Menstruation.

This may result from sickness, exposure to cold, or sudden checking of the last monthly flow, but the general poor health in such cases will contrast with the perfect

health that should be present. Such cessation does not point to pregnancy.

Occasionally women will be pregnant and yet menstruate from one to four months or more, regularly in time, but generally deficient in amount and duration. In these cases other symptoms usually indicate the true condition.

Nausea or Morning Sickness.

Hairs in the throat, and occasional vomiting without cause or previous sickness, are all different demonstrations of the same sympathetic disturbance in the digestive organs. Light menstruation with any or all of these symptoms is suspicious of pregnancy. No menstruation with these symptoms is *very* suspicious of pregnancy.

Pain, Hardening, and Enlargement of the Breasts

make a woman even more suspicious of pregnancy, when added to delayed menstruation.

Darkening of the Areola

around the nipples, with a puffiness of the skin convinces the woman, if need be, that she is pregnant.

Increased Size.

If she persistently refuses to accept of the pregnant idea, as for instance when nursing an infant, surely enlargement of the abdomen, with the crossness, restlessness, occasional vomiting and green stools of the hitherto good infant will at last convince her that it must be so, no matter how unwelcome the thought may be, or whether she has menstruated since baby was born.

Darkening areola shows in the second month; abdominal enlargement in the third or fourth month; hardening and soreness of the breasts in the second month; vomiting

commonly shows in the second month; but occasional nausea may show even in the first month.

Irritability of Temper.

A general disposition to find fault with those around her, and longings for strange or absurb articles of diet are all characteristic of the pregnant condition.

Necessary Articles for Confinement.

Every expectant mother has some friend or a mother who will advise her regarding the clothing for the baby and the articles needed in washing it. This is always best adjusted by them jointly. An experienced nurse will finish the details for the bed if consulted. There are a few things that the physician will need, and the list below will usually cover all his necessities.

Chloroform, two ounces.
Ether, one-half pound.
Antiseptic tablets (corrosive sublimate), two dozen.
Boric acid, one pound.
Fluid ergot, two ounces.
Brandy or whiskey, one-half pint.
Fountain syringe (new one preferred).
One skein of coarse white silk.
One zinc bed pan.
One soft rubber catheter (new).
Absorbent cotton.
Rubber cloth for the bed.
Carbolized vaseline.
Two and one-half yards of unbleached cotton for binders.
Large safety pins.

While many of the above articles are not used often in confinements, it is best to be prepared for emergencies and extreme cases. With the above equipment a mother will be sure that she has all that may happen to be needed.

The Confinement.

The nine months' wait comes to an end for the mother often before she expects it; also frequently it is prolonged far beyond her expectations. The writer has seen these variations reach three and even four months from the computed time. So common is a variation, or mistake of a month, made in calculating the date of confinement, that it has long since ceased to be noticed. This irregularity or uncertainty will always exist in these calculations, simply because there is no reliable starting point from which to count, and all women do not carry the fetus the same length of time.

Pregnancy means a period of 270 to 290 days from the last menstruation. Usually count is made from the first day of the last period, and then 280 days are allowed, but this is only the general average of time consumed. A simple way is to count nine months from the first day of the last full and natural menstruation; then allow one week more. This is probably as simple and correct as any elaborate system of figuring.

Young mothers often ask how they will know when their sickness commences. To some mothers this is a very simple and easily answered question, as the sharpness of the pains leaves no uncertainty; but not always so even to those mothers who have had the shortest and most favorable labors. Occasionally they will experience disappointment in having a slow commencement and a

tedious, powerless labor afterwards, without any visible reason therefor.

The pregnant woman may experience false pains in her back occasionally for two to three months before the proper time for her confinement. These occur at intervals of fifteen minutes to an hour or more. Frequently they are severe and alarm even those women who have borne children before. False pains are recognized, not by their severity, but by their irregularity in force and time. They do not continue to grow worse steadily and to return more frequently as do the regular reliable labor pains which commence thirty or forty minutes apart and soon are only thirty or forty seconds apart. Pains are accompanied by hardening and rising of the womb. In fact they are the painful evidence of this change in the womb; which change is the contracting of the organ in its efforts to expel its contents.

Pains.

These are merely uterine contractions, and may be felt in the back or in front. Usually false pains are felt in the back; and also the first of the regular pains. The well established labor pains soon show greatest suffering in the abdomen, steadily increasing in force and frequency as labor progresses.

The length of labor varies with the strength of the pains, the size of the infant, and capacity of the mother. The mother should keep on her feet, walking around as long as possible. In this way she secures the strongest pains and the shortest labor. Going to bed when pains commence often eases the pain but retards the labor. Enough force must be exercised in pains (uterine contractions) to expel the child, and the mother should encourage their quick and regular return by exercise. As

pains represent natural uterine expulsive force, it is always desirable to have strong ones, repeated at short intervals. This condition secures short labor, and should encourage the mother to exercise freely during labor.

As the physician will now be in charge he gives his directions and assistance to the mother. It would be impossible as well as useless to give here any farther directions or suggestions to the mother, that would be applicable to all cases. The variations are so many that only the physician is able to comprehend them and make proper application of means for successful management of each case.

Every woman in the commencement of her labor should notify her physician early, and also have her nurse waiting.

The Nurse.

It is always best to consult the physician first about the nurse, when there is any doubt about his knowing or endorsing her work. As the physician is the responsible party, his assistants should always be reliable in carrying out *his* orders only.

With trained nurses there is usually no doubt on this point, but with the untrained or old-fashioned monthly nurses there is at times some doubt about their ability to change according to the physician's directions. They have not had the requisite training, and only know each feature in the work from one standpoint, consequently they resent any changes in directions; are likely to be disloyal to physician and mother, and, worst of all, assume to do things their own way. This is dangerous work, and to an experienced physician simply intolerable.

The honest, loyal physician grows more and more cautious about his patients, with increased experience and

as years grow upon him. He feels his responsibility more each year and also feels that friends and attendants must bend all their energies to insure the comfort and perfect recovery of the mother. To have an ignorant or unreliable nurse there makes him continually suspicious, nervous, and uneasy lest a mistake occur with either the mother or child. Modern science has so clearly shown him, where one or both have been frequently lost or damaged in times gone by, and are even now meeting the same fate in unskillful or careless hands, that the expectant mother should always defer her judgment and choice to that of her physician in this important matter—selecting a nurse.

Escape of Waters.

Occasionally the membranes surrounding the child rupture and allow the waters to escape during the false pains or early in the labor. This should occasion no alarm, and unless accompanied by distinct pains does not demand the immediate attendance of the physician. This always occurs in labor at one stage or another. The early rupture means weak membranes which break easily; often the physician requires to rupture strong menbranes in order to assist and hasten labor.

The physician is not needed till pains are distinct and regular, for without them he can do nothing.

The Appearance of the Newly-Born Baby.

A baby newly born is not a pretty object. Nevertheless the new mother is always saluted and cheered with the assurance that she has a lovely baby or a beautiful baby. This is right; the baby is lovely or beautiful always, even if it is not pretty. Few babies are pretty when born.

Fair babies look very red at birth and for some days afterwards. Dark skinned babies do not show so red and raw; and generally on that account are the best looking.

Some babies when born have plenty of hair two to three inches long on the head; but the majority have only a thin crop of short fine hair, almost invisible on fair babies.

The skin is very soft and velvety with a fine, downy sensation to the hand. This downy coat passes away, usually, with the jaundice and scaling of the skin in the second week.

The skin is very raw and red on prematurely born infants, due to the imperfect development of the outer, or cuticular, layer.

The nails are complete and perfect on full-term babies; but only partially formed on those born before full time. The same applies largely to the eyebrows and lashes.

After the first two weeks a healthy full-time baby assumes its correct color and appearance. All swellings and jaundice have now disappeared; the food is adding to the flesh and weight; and the little one is assuming its truly pretty plump appearance.

The Head of the Baby.

The head of the infant when born is generally much deformed, due to the pressure it receives in passing through the bony pelvis. Deformity is generally in proportion to the length of the labor and the narrowness of the bony passage when the labor is natural. In instrumental cases the deformity is often much increased by the pressure of the forceps.

Deformity.

This is most commonly due to swelling on the part of the head coming down first in labor. It is caused by the pressure on all parts around the head constricting it, the same as a string does when tied around a finger. This pressure prevents the free return of blood to the heart, and, the spot receiving no pressure, swells up, thus giving the newly born head a long appearance and a doughy feeling, which passes away, usually, in a couple of days. Where labor is short and pains are very strong this deformity does not occur for lack of time.

Deformity also occurs on account of the loose, soft, and mobile condition of the bones at this time. These bones at birth are like the outside covering of a chestnut when it loosens to allow the escape of the nut. The bones are four in number and are fastened together at the base of the skull, but are loose all over the top of it, having open seams between the edges of the bones and two vacant spaces, called fontanels, where there is no bone developed, at the intersections of the end and side bones. These open seams and soft, pliable bones are part of nature's plan to allow the head to mold itself to the size and shape needed in passing through the pelvis. Frequently, in difficult labor, pressure will cause the edges of the bones to overlap and the head to flatten and elongate, thus materially reducing its size. Were it not for these provisions—soft, pliable bones and open seams—large infants often could not be born alive. There would not be room for their heads to pass through, and both mothers and infants would die. Deformity from compressed bones passes away in a few days.

The *pliability* and *softness* of the bones is so great that a little pressure of the finger will spring or move

any one of the four bones forming the cranium. Soon after birth the open seams close and the bones commence to solidify. This process goes on till it reaches the two spaces where the side bones connect with the front and back bones. At these two points open spaces are left, quadrangular in shape, one to one and a half inches in size.

Fontanels.

These spaces are called the openings of the head or the fontanels. They gradually lessen in size by the growth of the bones on all sides and are entirely obliterated, in healthy, vigorous, growing children, in fifteen to eighteen months. In rickety children, who grow bone imperfectly, the anterior or front. opening will not be closed before three to four years, and in these cases usually the outer table or half of the bones will be absent or very thin, leaving a depression in the skull forever. The posterior, or back fontanel, nearly always closes up perfectly. Figure 2 shows the bones, sutures or seams, and the fontanels. The anterior one is always the larger. The pulsations of the artery can be seen and felt in it. In poor, delicate, weak children there is always a depression here till closed with bone, while in fat, plump children and those suffering from brain disturbances, this fontanel is full and smooth with the adjacent bones, or even higher than they are at times. By this means head troubles are often

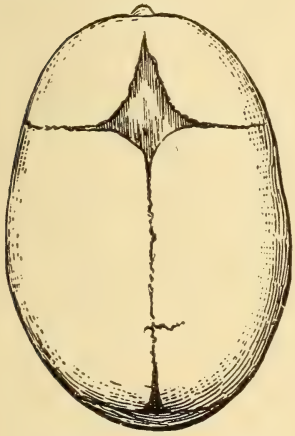

Figure 2. Bones of the Head.

recognized in delicate children, as the engorged circulation in the head swells out at the fontanel.

Nursery Armamentaria.

It is useless here to enter fully into all the detail of articles needed and used in a well equipped nursery. The powder, brush, puff box, soap, vaseline, soft cloths, diapers, and clothes are a study in themselves peculiarly belonging to every mother, and varied according to her taste and means. These I find are always provided for satisfactorily and correctly, even to excess in many instances. Where inefficient or lacking at any point the ingenuity of the nurse or some friend always meets the emergency.

Figure 3.
Ear Syringe.

Frequently syringes are needed to move the infant's bowels, wash the ears, or clean sore parts. For these purposes the soft rubber, one-piece ear syringe of a pear shape (Figure 3), is the most desirable pattern. Its softness prevents any hurting, and its shape requires only one hand in using it, thus leaving the other hand free to hold the infant. I have found this syringe capable of doing all that is required in the young infant.

As the infant grows older, a larger syringe of the same pattern, with a hard rubber nozzle (Figure 4), is required. It can also be used with one hand.

Figure 4.

Occasionally a syringe is required for enemas with which some force can be used, as in older children. The ordinary hard

rubber one of two or four ounce capacity (Figure 5) should then be used. This may be procured with a short but not a bulbous nozzle. Where the nozzle is long a narrow cloth can be wound around it, thus forming a pad to press against the bowel while injecting, and prevent leaking backward before all is injected.

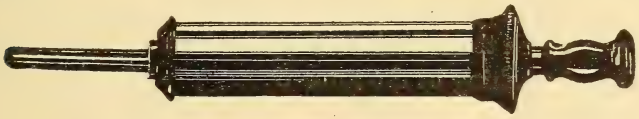

Figure 5.

A breast pump is often a necessity to relieve the mother of undue milk pressure when the infant is unable, from weakness, sore mouth, or sickness, to empty the breasts. One of the simplest forms of breast pump is that shown in Figure 6. With this a mother can very soon draw off a few teaspoons of milk, either to feed the infant, when from any cause it cannot nurse, to relieve unpleasant pressure in the breast, or to remove old milk regularly and thus secure healthy fresh made milk for the next nursing.

Figure 6.
Breast Pump.

A china sponge basin having two compartments (Figure 7) is a very desirable addition to the nursery. It avoids the necessity of two separate basins, as it holds both hot and cold water side by side, thus rendering it very convenient for all washing and cleaning when a full bath is not required. These sponge basins can be obtained with regular stands

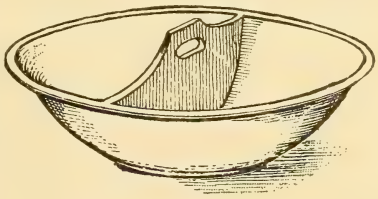

Figure 7. Sponge Basin.

of the proper height for use. Having a hand hold in the division they are convenient to move with one hand. This is an improvement on the ordinary basin.

A small infant's bath (Figure 8) will soon be a necessity for bathing the little one. While the sponge basin may do during the first month for all purposes of washing and bathing, a larger vessel will be required after that time in which the infant can be placed and have a regular bath and washing at the same time.

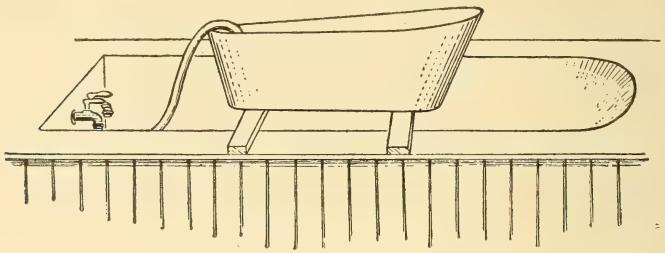

Figure 8. Foot Bath

By placing two strips of board across the regular bath tub, and placing the foot bath on these a convenient height and place will at once be obtained for the baby's bath. This may still farther be improved by attaching a piece of hose to the faucet and thus conducting the water directly to the infant's bath tub. The ordinary spray hose may be used for this purpose as shown in Figure 8.

Tempering the bath is an important feature of baby's toilet. This should be very accurately done for new-born infants especially, and also carefully done for all children during the first three months, as well as for delicate infants of all ages. When infants are perfectly healthy and well fed a variation of a few degrees in the temperature of the bath does not make much difference. Mothers

should remember that the great danger is in having the bath too cold for a young or delicate infant. Nothing injures them so much as the extraction of the natural heat from the body, and nothing will do that so rapidly as a cool bath.

Where an infant shows any shivering or blueness it should be removed from the water at once, dried very quickly and wrapped in hot blankets till the natural pink color returns to the lips. The bath must never be given in a cool room, and there should always be quick heating facilities in the bath-room at all seasons of the year.

To secure a perfect and uniform temperature for the infant's bath, a thermometer cased in wood (Figure 9) should be used. It should be read while in the water. Many mothers test the bath with their hands. They should remember that the hands can stand a temperature of 115° F. under ordinary natural conditions. Where the hands are chilled they will not stand 115° F., and where habituated to heat they will bear 120° F., or more.

Figure 9. Bath Thermometer.

The temperature of the infant is about 99° F. and that of the skin is 95° to 96°. The bath should not be a shock, and consequently should not vary much from 96° to 100° for the daily bathing. If continued long the evaporation will reduce it soon below 96° and may be injurious. Making the bath commence at 102° to 104° will not do any harm. Where it is necessarily continued over five minutes, hot water should be added to maintain an equable temperature in delicate children.

A bottle of fresh olive oil is a necessary

accompaniment of the nursery. Besides being needed in the first bath, it will frequently be required for cleaning scalded and red sore spots on the little one, and for softening the scaly, gummy, sebaceous secretion that accumulates on the scalp over the fontanel. All red chafed and irritated spots on the hips and in the folds of the skin are made worse by moisture, especially by adding soap. These spots are best washed daily with soft cotton and olive oil, till all redness disappears. With this treatment regularly repeated and the skin kept perfectly dry, the worst irritations and chafed spots will usually disappear in a few days. Infants with tender skins should be oil-rubbed instead of washed at all times.

A portable bath tub is often a great convenience as it enables the baby to be dressed in the room most suitable. A light home-made one is easily made with a piece of white rubber cloth one and a quarter yards long and thirty inches wide. A wooden frame is made of wooden strips two inches wide and one inch thick. The frame is made three feet long and twenty inches wide, the pieces being put together sideways making a shallow box two inches deep. On the upper edge of this the rubber cloth is tacked all the way around the top, folding it in on the corners. This leaves the rubber hanging down inside the frame, forming a soft flexible bath. To hold this up while in use four legs, twenty-eight inches long, made of stock one and one-fourth inches thick, two inches wide at one end and tapering to one inch at the other, are fastened with one small tire bolt or strong screw through the broad end of the leg to the side of the frame, and about one inch from the end. This bolt or screw should be passed through the frame one and one-fourth inches from the top and the same distance

from the broad end of the leg, so that the leg when attached will not show above the frame. This makes the legs so that they will fold up along side of the frame when not in use, thus enabling the whole bath to be stood up behind a door like a picture frame. To strengthen the frame a strip an inch and a quarter square should be nailed across the ends, on the under side of the end pieces, allowing it to project one inch on both sides of the frame. These projections will block the swinging legs when outstretched for bathing purposes, thus making all solid when in use. This makes a handy, portable bath tub of the proper height.

Sore Nipple Protectors.

Many mothers suffer greatly from sore nipples. Not only do they suffer from the child's mouth in nursing, but also from the contact of the clothes after nursing. The usual female garments press the nipples down into

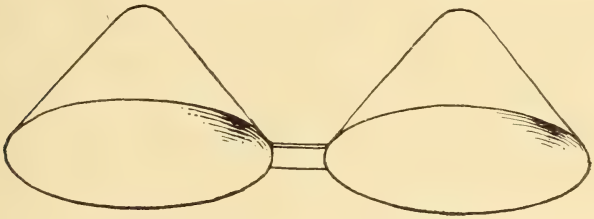

Figure 10. Sore Nipple Protectors.

the breasts, and the secretions from the cracks and abrasions ferment on and around the nipples and dry to the clothes, causing pain and distress when separated, thus preventing the healing process. This pressure and irritation can be prevented, and the healing of cracked and abraded nipples facilitated greatly by wearing little flat cornucopiæ made of pasteboard, five to six inches in

diameter. These will rest on the breasts and stand out from the nipples (Figure 10) thus holding the clothes away, giving relief from pressure and securing rapid healing. These sore nipple protectors are made of ordinary pasteboard. A piece five to six inches square should be made round, then an incision should be cut in one side, reaching to the center. The two sides of this cut must be overlapped and stitched together, thus raising the center to the requisite height to keep all clothes from touching the nipples.

These nipple protectors should be worn from the commencement of nursing until all soreness has disappeared. They prevent the clothes from sticking to the nipples and from crowding the nipples down into the breasts, thus affording great comfort to the mother. If the nipples are bathed after each nursing with Remedies No. 88 and then dressed with Remedies No. 90 all soreness will be avoided. Where the nipples are very tender and cracked the same treatment faithfully carried out gives the least suffering to the mother and the most rapid healing possible. The writer has not found any other line of treatment give such satisfactory results as this. With this dressing no washing of the nipples is required before nursing. This dressing prevents sore mouth in the baby.

CHAPTER II

THE YOUNG MOTHER.

Experience is the true guide for the mother.

In all the business walks of life we find the more experienced men and women most careful in selecting their assistants and heads of departments before employing them. Why is this the case? Because they know that only by experience can a person correctly and successfully discharge duties imposed on him. Nor is the employer satisfied, when he has such assistants, to entrust his goods and products to their care only. He knows that his own supervision is daily and hourly required to assist, encourage, and direct the best skill he can employ in any department. He is looking for perfect results, and has learned that the ability to secure them has been obtained through many errors and generally much loss or damage of product.

Is there any branch of life in which an experienced man or woman would think or say that the knowledge or experience now had or known concerning it was complete, and nothing more would ever be produced improving or advancing the present knowledge or methods governing its growth, manufacture, or care? Such perfection is only attained by nature herself under her most favorable conditions.

Witness the difference in the results of nature's work under different conditions. Look at the development of

Medical advice without cost is as valueless as it is generous.

man in the different zones, and note well the strides he makes in the temperate zone as compared with the snail-like pace he soon assumes when moved far north or far south to less congenial and less stimulating surroundings. Again look at the results in vegetable life—compare the towering California redwood trees to the northern scrubby birch or the southern dwarf palm, and you see, even in the hands of the Master, that environment, which means care, gives astonishingly different results.

Let us apply these facts to the home circle. A young couple, perhaps the *only* children of our unfortunate American one-child habit, are married. In time their first child appears, whether as a blessing or source of worry and sorrow soon becomes evident. If the young mother is healthy and is blessed with a plentiful supply of healthy milk, we see humanity under the California redwood environment, and can confidently hope for the towering and beautiful results produced in those natural and favorable surroundings.

But, as when we move the least distance east, west, north, or south from California we find vastly different results in the vegetable kingdom, due to less favorable surroundings, so, in the human family, when our thoughts pass from the ideal mother, with youth, perfect health, mental repose, and abundance of good nourishing milk for her vigorous, well-developed baby, to the sickly, harassed, inexperienced, anxious, and uneducated mother, we must expect in the children to find varying results, some trying to emulate the California redwood trees in appearance and perfection of growth, some showing the puny, slender, difficult growth of the scrubby birch, and

The young mother requires teaching on infantile subjects. She does not inherit this knowledge.

others the short, unsymmetrical, gnarly appearance of the dwarfed palm.

Why should we see these different results among children in the same zone, surrounded by the same atmosphere and with access to the same food? Nature allows this in plants also, but teaches the experienced gardener by cultivation and proper care to make the *weak* plants strong and vigorous also. It is his *skill* and *constant attention* that experience has shown *necessary* to secure these results. So with the human family must it be the skill and constant attention of the educated and trained mother that will make the small infant grow large, the pale one bloom into color, the weak one become strong, the sluggish one hasten in speed, the delicate one harden into the most vigorous, and the inherited weakling steer clear of his baneful inheritance.

Do you think our young American mother, with no experience in nursing or caring for the younger brothers and sisters in a large family, can possibly have this knowledge and ability to do justice to her own offspring? Do you think that the knowledge on this important and vital subject has been so completely exhausted that there is nothing more to glean? Do you think that mothers are born with all the information there is known on this point, or do you think that the young mother can select the correct one from the half dozen different advices given her daily on how to care properly for her delicate child?

Is not the great diversity of advices given the young mother the very best proof of the ignorance of the advisers? Who would presume to advise a business man

As the mother reads and studies for good results on all household subjects, so also must she do on all infantile matters.

Dietetics and the laws of nutrition should be taught to the school children.

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to change his methods of doing business, or the intelligent wife her ways in housekeeping? How quickly would such advice be resented! And yet on this infantile matter this is the daily habit, even of those people skilled in business. Why can this be so? Ignorance! Ignorance! Ignorance! If they knew the truth, all would agree, and one advice only would be needed instead of the half dozen offered daily.

Is it not strange that we should be so ignorant in this point; that we should travel to the end of this Nineteenth Century and yet have made no distinct educational effort to teach the scientific and rational principles of nutrition to our children? In this are we still barbarians, depending on parental instinct, or in other words following the law of the "survival of the fittest?" Our cemeteries say so.

With a moderate knowledge of the laws of nutrition and digestion ground into the future parents during school days stronger, larger and more vigorous children would be the result. They would know errors at once, and have intelligent reasons for correcting them. No longer would the happy-go-lucky, hap-hazard style of thinking and directing the child's progress prevail. Then would distinct rules govern, and intelligence and thought be the guiding factors in developing our successors in the human family.

Compare the general knowledge on this subject, as shown by the diverse methods followed in raising children,

If an infant's value could be calculated in dollars, as were the slaves, the principles of nutrition would be studied more carefully.

with the fixed principles and certain labor of the florist or stockbreeder, who cultivates nature's product in other fields. What does it show? That where we can estimate methods by the money they produce, we are infinitely more skilled than where this law does not prevail.

To overcome errors in the human family it is needed that the laws of dietetics and nutrition be made a necessary part of our educational system and taught regularly to the children in all our schools.

Were this the case, do you think that the mortality among our volunteers in the Spanish war would have shown as it did six times as many deaths from diseases of the digestive organs as from Spanish bullets?

Irritating the Nipples.

The first application of the child's mouth is very likely to cause sore nipples. Particularly is this the case in primipara, but it also occurs with every child in some women with thin or delicate skin. This should always be borne in mind, and the child applied as little as possible till the full supply of milk appears. We should always remember that the child draws harder the slower the milk comes, and always draws hardest on an empty breast.

Frequently we find young mothers during the first two days suffering absolute torture in their efforts to bear this pain. This should be avoided by feeding the child with a little sugar water (very weak) alternating it with nursing till the free secretion of milk is established, and the nipples can bear regular nursing.

Proper care of the nipples before labor will often avoid pain and suffering afterwards. It will also frequently avoid sickness of the infant.

The tender nipples should also be regularly bathed after nursing with a solution of boracic acid, one teaspoonful to the cup of water. This will prevent sores and cracks on the nipple and when honestly persevered in will prevent future suppurating breasts. For these nipples also apply Remedies No. 90 regularly after each bathing with boracic acid. As this ointment is harmless, the nipples will not require any cleaning before the next nursing; on the contrary, it is better that it should not be done as the ointment will prevent sore mouth in the infant. In all tender nipples the protectors (Figure 10) should be worn constantly.

Careful attention should always be given to strengthening the skin of the nipples, by daily frictions with water only, during the last two months of pregnancy, that it may be strong and able to bear the irritation of the child's mouth in nursing. Neglect of this feature will often sacrifice the whole milk secretion of one or both breasts, through cracks, excoriations, and resulting suppuration.

Enlarging the Nipples of Primipara.

Primipara should always commence early in pregnancy to elongate the nipples by drawing them out freely once or twice daily, so that there will be no difficulty in the child's grasping them when the breast is swollen and the nipple retracted by the first rush of milk. Neglect of this feature has sacrificed many a breast, preventing nursing entirely, or making it so difficult for the child to grasp the short nipple that the skin is badly abraded and great suffering follows at every nursing.

Very little nursing of the baby, and dry food for the mother should be the rules governing till a full supply of milk arrives.

The proper food gives good milk and a happy, strong, successful baby.

By giving attention to these preparatory details, and also by giving the new mother only dry food and no drinks till the first milk arrives, the child obtains plenty of food and a fair start in life, and its digestive organs are not outraged by the quality or quantity of foreign food required when nursing is impossible from sore nipples. From this time the mother's diet will require care and attention to perpetuate the good quality as well as the quantity of milk secreted.

Nursing Mother's Diet.

A fair proportion of animal and vegetable food is requisite, with the ordinary warm tea or very weak coffee, for the secretion of good, easily digested milk. Excesses in meat, milk, or eggs, in the dietary, will make a milk which is difficult to digest and make the infant restless and colicky, with occasional green, slimy stools.

Mothers have, generally, while nursing, to avoid all sour or acid foods and drinks or cold drinks, except those with warm meals; all raw fruit, except the sweet, sugary and fully ripe varieties; and cabbage. Perhaps the latter will disturb the milk secretion most frequently, though some mothers, with good stomachs and secreting easily digested milk, can eat it regularly without causing the infant any distress.

Great care should always be observed in properly dieting the young mother in the beginning to secure a good start for the infant, as this is the time of greatest danger.

Considerable difference in the treatment may be demanded by different patients. The poor anemic mother of 100 pounds should not be treated like the strong, plethoric one of 200 pounds, neither should the primipara with untested mammæ and nipples be given the dietetic liberty that may at-times be granted to the tried and proven mother of half a dozen children. An error at this time may subvert all future efforts of both mother and nurse for successful nursing by causing sore nipples and consequent suppurating breasts.

Avoid Increasing the Milk at First.

To understand this subject clearly let us first look at what is often necessary during the later periods of nursing. When a mother is deficient in milk at any time, with empty and flaccid breasts, she is advised and properly so, to partake freely of nourishing drinks. This fills up all the blood vessels, particularly those of the breasts, and thus gives them a greater supply of well nourished blood, with which the milk glands secrete more milk. Now, what have we at childbirth, as soon as the milk secretion commences, but the very opposite condition—an engorgement or intense swelling of the breasts, which frequently causes considerable suffering till the nursing of the child draws off enough milk to relieve the pressure. Now, this opposite condition should receive the opposite treatment. All mothers should be cautioned against liberal drinking of all kinds until the first full secretion of milk is established and the milk glands are able to relieve the engorged blood vessels and thus prevent the pain and danger of suppuration, which is too common at this time. After this is fairly established and the child is able to nurse freely and regularly,

Correct diet of the mother secures peace and rest for the whole family, by making good baby food.

then the general solid dietary, which has always been restricted in quantity up to this time, can be gradually increased. Also a more liberal amount of liquid may be allowed. The increase in both of these must be governed by the flow of milk.

The digestive organs of the poor milk secreter may be gradually crowded up to their full capacity, while those of the copious secreter should be restrained in both solid and liquid dietary, within the bounds of a fair supply of milk.

Irregular Nursing of the Child

either too often or too seldom will cause imperfect development and nearly always indigestion also. This irregularity does not refer to those longer intervals always occurring at night, and the occasional half hour longer or shorter between nursings in daytime, which always occur in raising a healthy child. The character of the stools, coupled with the ability to sleep comfortably, will always show whether the nursing is correctly done. Yellow stools and continuous quiet sleep are always indisputable evidence of healthy milk, a proper quantity of it, and feeding regularly enough done.

Empty the Breasts During Sickness.

In all cases where the mother desires to again nurse successfully she must be very regular in her attention to her own breasts during her own sickness or that of her infant. On this point there is not usually that great care exercised which is requisite to always secure a fair amount of milk of a perfect quality. Too frequently we

Nursing only at regular intervals secures an even quality of milk, and a happy infant.

Overworking the mother reduces the milk supply and injures the infant.

see the mother forget that her infant is a success because of the regular fresh secretion of milk every two or three hours. In sickness this regularity is forgotten, and the sick infant is allowed to nurse milk six or eight hours old. The common result is stomach disturbance in the infant and more damage than benefit invariably follows.

The rule should be to nurse the breasts regularly, whether the infant is fed with the milk or not. By doing this the regular secretion is perpetuated, and as soon as it is again needed by the infant it comes fresh and true to strength. By this means perfect nutrition of the sick child is secured, in proportion to the amount of milk drawn, and rapid convalescence follows this perfect nutrition.

The Overworked Mother.

Commonly a poor, pale, anemic woman asks advice for her cross colicky baby six months or more old, perhaps even less. The first glance tells the physician that the woman and her duties are not properly balanced. Questioning her shows that she is steadily losing weight, strength, and ambition. Examination shows she is not sick; then she is doing too much and wearing away. The food she consumes is not enough to nourish her, supply milk for the child, and perform her labor also. Then nature divides the food around to these three points demanding it. As her work demands so much food to do it daily there is only a small balance left for the mother's and the child's sustenance. This not being sufficient, the result

Remember every mother has not a good milk, even when abundant. The infant's green, slimy stools say this.

must be a cross child and a failing mother. The prescription will naturally be,

Less work,
More Mother,
Better child.

Women who Should Not Nurse Children.

This may be divided into those who cannot secrete a healthy or nourishing milk and those who can secrete a nourishing but unsafe milk.

Of the former, we have subjects from all classes of society, and these may show bad results at any time during the nursing period. These mothers may come from healthy stock, may have nursed successfully before, or this may be the first child. It matters not; the milk must now be made of such quality as to bring yellow, inodorous, mustard stools, or it is a failure.

Frequently we find the error in the mother's dietary, conduct, mental or physical condition. She may look well and be strong herself and yet under the best care and directions fail to secrete a healthy milk. Her child is cross and restless, has unhealthy, foul stools, and does not gain in weight. Such a child must be weaned, or during the first hot weather or epidemic disease it will probably die.

Of mothers who secrete a nourishing but unsafe milk we have examples among those who inherit tuberculosis, cancer, syphilis, insanity.

Here we have mothers who cannot allow their physical condition to be reduced, lest they increase their own sickly tendency, and also lest they still farther

Scarcity in mother's milk too often means bad quality also.

All medicines damage the quality of the milk secretion. Many reduce the amount also.

impart their weak tendency to the children. Here we have both parents and children who cannot afford to be reduced in any way lest the tendency in their health towards their innate weakness be increased. All these mothers and infants require the best of care and nourishment to give them the greatest possible protection. Only in this way can they live over their ever present tendency downward.

The children of such parents should, if possible, have a wet nurse of undoubted ability to properly nourish an infant. This she must demonstrate beyond all doubt by the appearance of her own infant. If a wet nurse cannot be obtained, then the most correct nutritional diet is an absolute necessity in order to avoid the child's inherited tendency, as this is most likely to show in childhood.

Mothers Under Medicinal Treatment.

Mothers suffering from chronic or constitutional ailments, can seldom follow any medicinal treatment while nursing. There are few medicines which do not affect the milk unfavorably, causing the child to become cross, restless, and uneasy. Nearly all medicines appear in the milk, and show their physiological effect on the child. This fact can, and is taken advantage of frequently, to produce a desired medicinal result on the little one, especially where the mother also requires the same treatment. It would not be allowable to administer medicine to the mother purely for a treatment of the child, except in very extraordinary cases, and then only for a short time.

Mental worry makes a cross, colicky milk. A violent temper also is reflected in the child.

Mental Condition of the Mother.

A disturbed mental condition of the mother is sure to affect the milk unfavorably. Fear and anger have been known to cause convulsions in the nursing infant. Fretting and mental anxiety always reduce the amount of milk secreted, and at the same time damage the quality of it. This secretion is so completely under the control of the nervous system, that all mental conditions produce characteristic results on both the amount and quality of this product. It behooves all mothers to bear this in mind continually, and not charge to ill temper or sickness in the child what it may be receiving daily and hourly in its nourishment. While it is a common and trite saying among women, "that the true way to reach a man's heart and health is through his stomach," far more applicable would be this expression if applied to those little ones who are entirely dependent upon their mothers, both physically and mentally, every hour during the first six to ten months of their existence.

Women Who Should Not Nurse.

Women in poor health very frequently secrete a poor or unhealthy character of milk. Poor quality is shown by the continued crossness, paleness, and limited growth of the child. In unhealthy milk these symptoms will be accompanied by foul smelling, slimy stools, which may be continually loose, or costive and loose by turns. While frequently the children of scrofulous and tubercular mothers (both the same) are good digesters and apparently thrive well and grow rapidly, there is always the

When an infant does not thrive and feel happy, look carefully to the mother's milk.

great probability of increasing their inherited weakness. Danger is materially increased in these cases where there are any enlarged glands, lumps in the breast, or sores and cracks of an obstinate character on the nipple.

Where the mother is suffering from any chronic cough or irritation of the lungs or bronchial tubes, it is imperative that she avoid nursing.

The Syphilitic Mother.

The syphilitic mother should never nurse her own children, seldom will they thrive if she does. They generally become poor, brownish yellow colored, wrinkled, and old looking. Under proper nourishment and suitable treatment most of these cases will thrive fairly well, and few sores or eruptions will appear on the skin.

Poisonous Milk from Mental Disturbance.

Authentic cases are on record where a sudden mental shock to the mother has suddenly developed a poisonous condition of the milk and killed the child, and from the worried mother every physician is accustomed to see fever, nausea, vomiting, diarrhea and even convulsions commonly occur in the child. With these results plainly staring us in the face it behooves us first to thoroughly imbue the mother with her ability to nurse and not allow any doubt on this point to arise at any time. Having done this, then see to it that no other mental distress, loss of sleep, worry over the child, extra care, imperfect digestion, or undue toil depreciate or lessen her lacteal capacity. Her thoughts and employments must be always of the kind which conduces to the greatest amount of happiness and

Mothers must remember that the infant's success depends as much on their own mental condition as on their food and health.

Mental disturbance in the mother is sure to affect the infant.

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enjoyment. In this condition we have the best digestion, the most perfect appropriation, the greatest rest, and consequently the largest healthy milk secretion possible.

The Apprehensive Mother.

The apprehensive mind often causes the greatest trouble in nursing. So great is this influence that at times it completely subverts successful nursing. The fear that she will not be able to nurse not only reduces the amount of milk secreted, but commonly alters the character of it. You ask me, How can this happen? In answer—Where did you ever see any person that digested well and largely, in an anxious, worried, mental condition? Where did you ever see a person sleep well in this mental condition? Where did you ever see a person increase in flesh and improve in color, while under this mental lash? These are impossibilities. How then can you expect a mother to support and nourish well a second life when she is not able to care properly for her own? A moment's thought and consideration of the situation will show the absolute impossibility of lacteal success till the mother is happy and free from this strain. Unfortunately the apprehensions and suggestions of physician and friends are often tinctured with too much nursing uncertainty to be a mental tonic and solace to the anxious mother at this time. What true mother is there who does not want of her own flesh and blood to nourish and sustain the helpless little duplicate of herself, the product of her own womb, that child whose struggles

Perfect confidence in her ability to nurse contributes greatly to the doing of it.

and movements have been her silent company for many months prior to birth, and for whom she has patiently and willingly endured nausea, privation, distress, and excruciating pain; nay, more, for whom she has willingly risked her own life. Think of it then, what greater shock or privation (except death itself) could at this time be suggested to her, than the probable inability to nurse her baby? Small wonder is it that the suggestion of a wet nurse to many a mother causes her to declaim with horror against any woman having the privilege of nursing her offspring. Some women hate the sight of a wet nurse, and others say they feel as if they wanted to shoot them. It is only their intense love for the child and anxiety for its future success that gains their consent to this necessity, and only then, after they realize fully that nothing else will save the life of the little one. Encourage the mother in every way, should always be the rule.

Perfect Digestion Required in the Mother.

We have already referred to perfect digestion on the part of the mother as a necessary foundation for good and abundant milk secretion. This is a point where failure too often asserts itself, through the lack of education on this subject. Every mother, especially one poor in flesh, should have this necessity thoroughly drilled into her. Not only once, but twice, thrice, and many more times, must this important subject be impressed upon her. Not for one or two meals daily, but for all meals on all days must this absolute need for perfect digestion be recognized. Here will come in the necessity for careful medical advice, and little, if any, medical treatment. Every physician

The gormandizing mother bids for a cross, restless baby.

A mixed diet for the mother makes the best milk for the infant.

must realize the great importance of the mother's digestive power at this time, and carefully educate her by all non-medicinal means, to secure its most complete success. Herein will frequently come the necessity for using digestive stimulants or assistants. They can be used with great advantage in weak digesters and continued indefinitely, always tending to the improvement in flesh and strength of the mother, and, also, the increase of the milk supply. True it is, that if used indiscriminately, in all classes of digestive organs, especially of hearty eaters, many times they would tend to the production of colicky milk. This quality must not be charged up against these stimulants, but against their careless and ignorant application, and to unsuitable cases, which should be otherwise handled.

Food Indulgence.

Milk cannot be made from one food alone. A fair supply of nitrogenous food (eggs, meat, and milk) and farinaceous also (sweet fruit, vegetables, and cereals) is required by every nursing mother. If she can depend on one line alone it must be the farinaceous. The nitrogenous foods are principally tissue builders and make that building element in the milk called albuminoids or proteids and also the fats. While a fair share of this is needed for growth and strength, an excess causes indigestion and consequent crossness in the child. This fact must be borne in mind by nursing mothers and warn them against an over indulgence in meats, eggs, and milk. The fact that they can digest it well and comfortably is no evidence of its suitability or desirability as a milk

Indigestion and unsuitable food for the mother cause indigestion and crossness in the infant.

producer. Many a mother causes a restless and disturbed night for her child by partaking of a too hearty breakfast of eggs or a too generous dinner of meats. Her milk is too albuminoid for comfortable digestion. Drinking large quantities of milk is open to the same objection.

Mother's Food After First Month.

Some mothers can partake of all kinds of food without any appreciable deleterious influence on the milk. Their children are generally blessed with good digestive organs, which are not easily disturbed, and also the milk is an easy one to digest. Generally it is necessary for the mother to avoid sour drinks and fruits, cabbage, spiced meats, pickles, coffee, and spirituous liquors, as these change the quality of the milk. It is also always necessary that she avoid all kinds of food which previous experience has shown her are difficult for her to digest. Nothing is more important than that she avoid an attack of indigestion. This demands that she always eat and drink such food and quantity thereof as she knows she can digest comfortably. Every mother must, at this time and also during the whole nursing period, realize that her uncomfortable physical sensations are more or less reflected in the child through the changed character of her milk, and the child rebels against these changes by being "cross."

Foods that Increase the Milk Secretion.

Frequently it is necessary to stimulate the milk secretion, on account of deficient supply. This must be done with food, as there are no medicines which will do it.

Beer and tea make more milk but a poor quality.

Too exact regularity in feeding may be as injurious as the opposite. Generally, let the infant speak.

In some women neither food nor drinks show any appreciable power to increase this secretion, but in the majority of mothers nourishing drinks in liberal amounts will produce very decided results. The drinks generally most successful are gruels made from oatmeal or cornmeal, weak tea, beer, and with some weak women, dilute milk and beef tea. The use of milk, beer, and beef tea must be watched carefully as they produce a colicky milk in some cases. With some mothers these drinks tend more to produce fatness than increased milk secretion. The amount of these extra foods and drinks must be controlled by the mother's ability to digest them comfortably. Enough to cause indigestion always decreases the flow of milk.

Regularity in Feeding the Baby.

While it is well to impress upon the mother the necessity of regularity in feeding the child, this cannot be made a cast-iron rule. Judgment and reason must be exercised in this matter, and the time will frequently, in a healthy child, require to be varied a quarter to half an hour on account of sleepiness or the size of the last meal. A small meal may demand a shorter interval and a large meal a longer one. The main necessity is that mothers do not fall into the dangerous habit of nursing merely to quiet the child regardless of time, vomiting, or the amount of food taken. By adhering to this general regularity in feeding, health and growth are secured for the child and rest and comfort for the mother. This applies equally to nursed and hand-fed children.

The night should not be disturbed by feeding when this can be avoided.

Proper Intervals Between Nursings.

Frequently vomiting is not caused by the amount drawn at any one time, but on account of the too frequent repetition of the nursing. Too many mothers make trouble for themselves and babies by not adhering to regularity in intervals between nursings. The new-born child should be fed, when healthy, every one and a half hours in day time for the first month or six weeks; after this every two hours till the fourth month; from the fourth to the seventh month every three hours; from the seventh month onward every four or even more hours in some cases. During the night time a healthy new-born infant will nurse two or three times, and less often as it grows older.

Care should always be taken by the mother not to feed frequently at night, as this soon establishes the habit, and great harm is caused by it, for the disturbed sleep of the mother reduces the quantity and changes the quality of her milk, causing indigestion and crossness in the child. When the child shows the disposition to turn night into day, the greatest perseverance must be exercised in denying the food at night and giving it regularly in day time, always waking the child if needed to make it feed. Here it may be allowable to give the little one some anodyne for one or two evenings to assist in establishing the regular habit of sleeping at night. Where a child is fed regularly for twelve or fourteen hours, if the food is suitable, there will follow a period of several hours' rest with few demands for food. The frequent feeding hours should always be made to come in the day time.

Moderate exercise improves the milk secretion; overworking decreases the amount and injures the quality also.

Exercise of the Mother.

This is a feature receiving too little attention by many mothers during lactation. There can of course be no fixed rule on this point designating the amount of exercise suitable to all mothers. The general principles governing this feature must be intelligently applied. Perhaps it cannot be better expressed or explained than it is by this idea—there must be enough exercise to secure comfortable, refreshing sleep at night, but not so much that the mother is still wearied and tired after a good night's sleep. The amount will of course vary greatly according to the strength and age of the mother. It is a well known fact, that exhaustion or anything approaching it *from exercise* diminishes the milk supply and generally changes the character of it also. The food consumed must supply the force or power for all duties, physical, mental, and maternal. If this food is expended in exercise it cannot be used in secreting milk, consequently the amount of exercise or labor allowable must be in proportion to the amount of food consumed, the perfectness of digestion, successful sleep, and the amount of milk needed. The latter, being a necessity, should receive first consideration, and care should be taken that the digestion is so strong and perfect that it will supply enough aliment for this, and a fair share of physical exercise afterwards. Without this exercise we cannot have that good, healthy discharge of all functional duties of the internal organs requisite for good health and good milk.

A wet nurse who works is the only reliable one. She must be kept busy or she will be a failure.

Wet Nurses.

Wet nurses are to be revered or dreaded according to their quality. Not always so, however, for occasionally the demands on a wet nurse are more than any women in her changed conditions can fill. But so often is the attendance or presence of the wet nurse in a home a great trial from the unexpected domestic and financial conditions, that we have come to look upon the suggestion of their necessity as a fact to be dreaded. While the writer has had some trying complications from their presence (or at times their absence) yet he is happy to say that the vast majority of wet nurses are successful, and the lives of many children can be traced to their kindly care and good sustenance. In many instances they are willing to do the housework while the mother cares for the infant, and in not a few cases have they continued as servants after the child was weaned.

Not second in importance is the care of the nurse's little infant whom necessity has suddenly robbed of its food. Unfortunately many of these die. This is especially true of those who have not enjoyed their mother's milk for two to three months at least.

In fact, there should be a law preventing mothers from leaving their children to the care of others before they are three months old. Experience shows at least this time is needed in nursing to strengthen the infant for the shock of substitute feeding, even if this is done by skillful hands. All mothers who employ wet nurses should see to it that the nurse's infant is in competent hands and that the caretakers thoroughly understand the

Always provide for feeding the infant of the wet nurse. This will prevent the nurse leaving you when it is sick.

substitute milk feeding. Only in this way can a kind mother reconcile her thoughts to the sacrifice made by the wet nurse. When this subject is thoroughly understood by our American mothers, there are none of them who will fail to attend to this as a first duty. It behooves them to do so, as thus they secure that peace of mind and happiness necessary in the wet nurse to properly nourish her adopted charge. Failure to observe this necessity causes the probability of a sick child when the wet nurse can least be spared to attend her own offspring, and a second sick child from the nurse's desertion.

Requisites for Producing Good Human Milk.

1. A healthy woman from 20 to 35 years old.
2. A good appetite.
3. A happy mental condition.
4. Good digestive organs.
5. Regular bowels.
6. Moderate physical labor.
7. Plenty of sleep.
8. Absence of menstruation.

While many women are good nurses before twenty and many others are likewise the same after thirty-five, yet most of the failures occur in these extremes of age. The only proof of success is the growth and comfort of the child.

Proper Time to Wean the Baby.

Calumnious assertions are made in the public press reflecting on the willingness of American mothers to nurse their own children. I am pleased to be able to deny this of our Detroit mothers; who, I know, are only

Never wean in June, July, August or September, unless sickness compels it. Always wean when the infant is healthy and strong.

too much worried lest they may be unable to perform this function. Many times do I find this anxiety actually interfere with their success, and frequently it becomes necessary to remove this apprehension in order that nursing may be a success. For the one mother in Detroit who tries to avoid nursing her child, there are fifty most anxious to perform this loving duty, and the great difficulty is to induce those who cannot do it successfully to realize the necessity of weaning soon enough to prevent damaging their infants.

No mother should commence weaning her healthy child before it is ten or twelve months old, without good cause for doing so; and in such case she should not entertain the idea except after the careful and painstaking investigation of the necessity therefor by her physician. The too common idea that an infant can be fed as well and successfully as it can be nursed should always be opposed; and the mother should also remember that this change is very frequently a dangerous one. Certainly very serious sickness and even death itself are common results of it. Age, health, season, and food must all receive most careful study before entering on this serious alteration in the child's sustenance, even if it is proper weaning time. A high rate of mortality follows cases of forced weaning.

CHAPTER III.

FIRST FOOD OF THE INFANT.

Only give sweetened water and a few drops of cream to the newly born infant, before the mother's milk comes.

The mother must control the diet of the infant from the hour it is born, and thus avoid future sickness.

After the infant is born and dressed the watchful eye of the mother should be turned to the diet of the infant. Why should the young mother or any mother be loaded at once with this responsibility at such a critical time? And why not? She is the mother. She has the greatest interest in the infant. She will have the greatest care and responsibility in the future. To her will come the anxious days and sleepless nights of future infantile sickness. "Others come and others go," but "she stays on forever." She will be the sufferer by the mistakes of others' making at this important and tender time. Will she set her opinion or dictum against that of older and presumably more experienced women around her? Why not, when she knows that a very little sweetened water, one part of sugar to twenty of water, or very dilute cream—one part of cream to ten of sweetened boiled water, is the most that is safe for her infant till her milk comes? Is she not like the child who has learned his letters perfectly and knows every one separately? Does she not know them all correctly? Who can know them better, and does she not recognize at once those who do not

The mother's milk usually arrives on the third day. Until then little food is needed for the infant.

The capacity of the infant's stomach when born is only 6 to 8 teaspoons. More than this is injurious.

know these letters of feeding as correctly as she does? She must never hesitate, one mind must rule. And now is the time for her to commence holding the reins.

Usually the mother is not able to supply the child with food as soon as it is born. This is not necessary, as nature has supplied a sufficient nutriment in the infant to last for a day or more. In the light secretion existing in the mother's breast there is also some nourishment. These are sufficient till the bowels are completely emptied and the infant has enjoyed a good sleep of twenty-four to thirty-six hours.

Very little nourishment if any is needed before the mother's milk arrives. This is usually on the third day. Occasionally it comes on the second or even the first day. Where it is necessary to feed artificially, parents should

Figure 11. Actual Size of the Infantile Stomach at Birth.

remember that the capacity of the infantile stomach is only six or seven teaspoonsful. (Figure 11.) Nothing

Colostrum milk comes during the first week of nursing and during poor health. It causes crossness, colic, and diarrhœa.

should be given but a little sweetened water, as this is the aliment most easily digested and the one selected by nature to be the largest constituent in healthy human milk. One teaspoon of sugar to about twenty of warm water is strong enough for first feeding. All other foods must be avoided at this time, as they are foreign to the infant's digestive power and are sure to cause indigestion and colic.

First Milk; Colostrum Milk.

The first secretion of the breast is not as rich as the later milk, and is of a light, glairy color, having little resemblance to the natural milk secretion. This is known as colostrum milk, and is intended by nature to act as a laxative in loosening the bowels and cleaning out the first stools. See how nature provides for a necessity. In the newly born infant there is an accumulation of dark, greenish, or black tough viscid fœcal matter. This is difficult to move and this colostrum, or first milk, acts like a laxative, washing out this tough glutinous material.

Colostrum milk always continues to be secreted for a few days and may in some women continue for a couple of weeks where the convalescence is complicated by other sickness or a very debilitated condition. Under these circumstances the usual colicky state of the infant while drinking this colostrum milk is prolonged in like manner. Generally during this time the infant loses weight or gains little till a healthy condition of the milk is established.

Healthy human milk gives twenty hours daily of calm, easy sleep to the newly born infant. It should feed every one and one-half hours in day time and twice through the night.

Healthy Human Milk.

After the first few days of nursing the baby with an abundance of her milk, the mother will find the infant sleeps most of the time, it being necessary to waken it in day time to have it nurse and thus relieve the painful

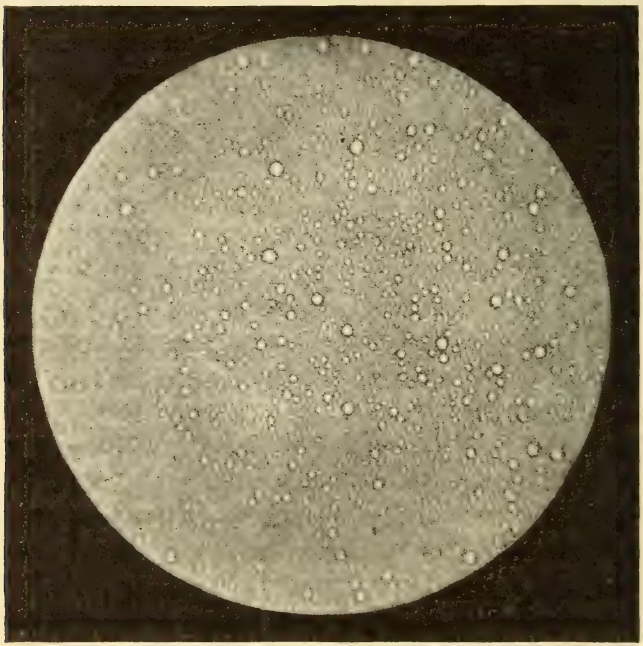

Figure 12. Appearance of Healthy Human Milk Under the Microscope.

tension on the breasts from this full secretion of milk. This nearly continuous sleep of twenty hours daily proves the healthy character of the mother's milk, and while the infant rests in this calm, comfortable way we may be

Unhealthy human milk causes green slimy stools. The infant should be weaned if the stools do not come yellow and without slime.

sure the food is suitable and look for steady and rapid growth in the little one.

During this calm, restful, sleepy time the baby always has the characteristic healthy stools—yellow and inodorous, with a mustard paste consistence. The young mother should note these characteristics carefully, remembering that the sure success in both mental and physical development of the child always accompanies these healthy stools.

Unhealthy Human Milk.

The general impression is that the mother's milk is always the right food for the baby. While this is correct in the vast majority of cases, there are a few instances, where this milk is injurious to the little one under all circumstances, and will keep the child cross, restless, and sick, with little or no gain in weight while fed on it. There are again other cases where the milk will remain good for a few weeks or months and then change character. This generally occurs in fleshy, nervous, and unhealthy mothers.

There are also cases where a mother's milk damages one child, while it has been perfectly successful with previous children. It is generally found under the microscope that where there is an unfavorable change in the nursing that the milk contains colostrum, an ingredient always present during the first week of nursing. Colostrum milk contains little nourishment, is difficult to digest, and acts as a laxative on the child. This condition of milk secretion is due to sickness of the mother, and should receive prompt attention, as the

Green slimy stools make the infant cross, uneasy, and sleepless. It cannot thrive well while they are of this character.

child cannot rest or sleep and fails steadily while the milk is of this character.

In these children there is continual distress and uneasiness, sleep is intermittent and frequently disturbed; occasional vomiting occurs; gas is constantly returning

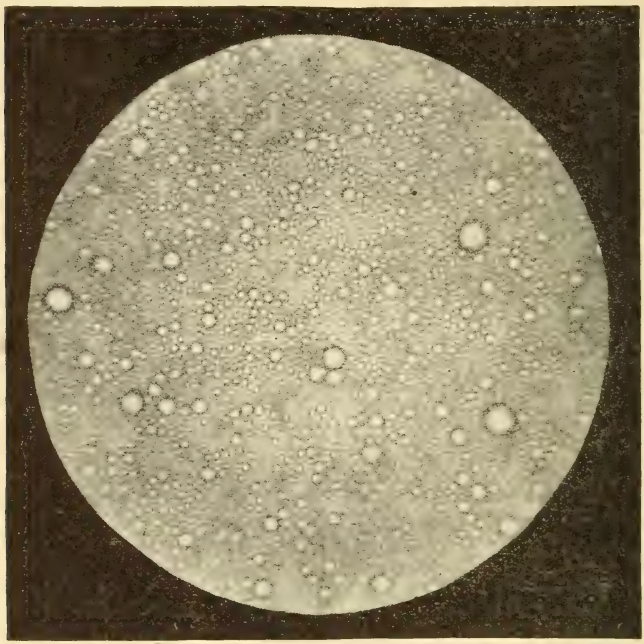

Figure 13. Microscopical appearance of unhealthy human milk, showing the large colostrum cells of the first five days' nursing or during a sick era.

from the stomach, and, also passing freely through the bowels; the stools are foul odored, green and slimy, or pasty and many colored. The infant remains pale, with soft flesh and gains very slowly or not at all. Frequently

Where a nursing infant's stools cannot be made yellow, inodorous, and pasty, by treating the mother, the infant should be weaned.

Delicate mothers, those having indigestion, and those sick otherwise, or worried much, make a milk unsuited for the infant's health and growth.

the child of five months is little heavier than when it was born, and its only salvation is in a wet nurse or a careful weaning, that brings yellow, inodorous mustard paste stools.

May Need Weaning.

Where due attention has been given to the mother's health, all her habits of exercise, diet, and rest regulated, and yet the child after careful medicinal treatment remains cross and restless without gaining weight, unless some strong reason appears against it either in the health of the little one, its age, or warm weather, the propriety of weaning should be at once considered, if a wet nurse cannot be obtained.

Indigestion in the Child.

Indigestion appears frequently in nursing children, either as an inherited weakness, or as a result of some sickness. We find instances after weaning, where a child cannot digest all parts of the milk, but will thrive on the fats and liquids after the casein or cheesy part has been lessened or mostly removed; also cases where the fats will sometimes disturb the stomach and cause looseness of the bowels, where too much cream is given in the dietary. So also do these results appear in nursing children with delicate stomachs. And may be serious enough in some cases to necessitate weaning.

Where the mother is perfectly well, but overworked, overfed, or anxious and worried we generally find the

Too much meat, milk, or eggs eaten by the mother makes colic and crossness in the infant.

The cross, colicky, restless infant is a sick one. It is always happy when well.

infant's crossness and failure to grow due to an excess of proteid in the milk, and sometimes due to deficiency or excess of cream. Here the condition of the mother must be corrected before the infant can succeed. Her exercise must be regulated to a healthy amount daily, her food adjusted to regular and reasonable amount at each meal, not consuming too much meat, milk, or eggs; and her mental condition made happy and reasonable so she has plenty of sleep. If the child is not made comfortable by these changes, and the stools a healthy yellow, the necessity of a wet nurse or weaning should be considered at once.

Mother's Milk Injures the Infant.

Hitherto this has been recognized only when it became so apparent from continued sickness of the child as to necessitate weaning. Herein exists a great mistake, as few mothers will consent to this until they feel that the child's life is endangered. Before this point is reached great damage, sometimes irreparable, is done and the foundation for future poor health of the little one established. This should not be the existing condition of maternal nursing. Mothers should be so well educated and experienced on this subject that they can give the little nursling the same careful and anxious dietetic thought they would give it if sick with some fever. This means that the cross, restless, or colicky child is a sick one due most frequently to the character of the mother's milk. When mothers understand this thoroughly they will realize that it is their prime duty to secure such

Less than four ounces weekly gain in weight demands weaning, or an improvement in the mother's milk.

medical advice and attention when the infant *first* shows uneasiness as will ascertain where the error exists and have it corrected before the infant is damaged. Only in this way can they hope to raise strong, healthy, vigorous children, who are a pleasure to the eyes and a comfort to the hearts of their parents.

Food Should Be Changed.

Where the weekly weighing of the nursing baby shows less than four ounces gain in weight, the mother should look carefully to her own diet and to her mental and physical condition. If with this failure to gain in weight there should also be much varying in the color of the infantile stools and a tendency to vomi, she must decide soon on weaning from her milk. If she find that she cannot within two weeks at the outside correct these features, she should always procure a wet nurse if it is during warm weather. If the infant is under four months old it is always safer to secure the wet nurse than to try feeding on humanized cow's milk. This is the only food which should be tried with such young children.

The wet nurse should be secured without the hesitation and delay usually accompanying this serious complication. Here promptness and decision are of the greatest importance, and the mother should be made to realize that hesitation now may mean the life or future development of her infant. The mother's milk, in these cases, carries poisonous or irritating qualities which rapidly produce changes in the infant's digestive organs and blood. If not checked early these changes soon pass beyond perfect repair and some beyond any repair. These

Where a mother's milk fails to nourish properly, a wet nurse is the best substitute for young infants.

When an infant has had two or three months of successful nursing, it may be weaned, if a good wet nurse cannot be obtained.

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infants soon lose the power to digest milk of any kind, especially the casein or proteid which is the strength and tissue builder. When they reach this point they show the yellow, waxy color, the soft flesh, the blue veins, and the weak muscles of the rickety infant, and it may soon not be possible for the child to digest even the healthy milk of a wet nurse.

Where the wet nurse fails to secure yellow, well digested stools, which are the only proof of her success, then weaning is the only resource left. The idea now is to secure nourishment through dilute cream, whey, meat juices, and prepared starchy foods which have reached the sugary stage through perfect boiling for three hours and the addition of malt extract when feeding.

As meat juices present a proteid different from milk and a new element, extractives, not in milk, this infant may occasionally digest it well. If such be the case, then a very dilute starch, such as rice or barley water, sweetened and flavored, must at once be added to this diet. If this is not done the infant will fail rapidly on meat juices or whey alone. The rice or barley water should be increased in strength as fast as the stools show good digestion.

On these combination diets the stools loose their milk yellow color, become gray or brownish and more consistent and formed. Stools from a meat diet have always a stronger odor, and will occasionally continue fluid in character while the scales show a steady increase in weight of the infant.

Yellow, inodorous, mustard paste stools are proof of successful feeding in young infants. Children having these thrive well.

When these stools become too solid oatmeal starch should always be used; when too liquid the starch from rice and barley is preferable.

CHAPTER IV.

COW'S MILK.

Cow's milk properly adjusted to the infant's digestive organs is the only safe substitute for human milk.

The nearest duplicate known for human milk is the same product from the cow. When we realize the difficulties that we confront in feeding this nearest substitute to young infants, how vain do the efforts of patent food manufacturers prove to be! Analyses shows how widely far from nature's plan they are in their crude and futile attempts to follow her perfect designs. Nor do we need to depend upon analyses for this knowledge. The lamentable and painful results of feeding these proprietary foods to infants come too often before experienced physicians to require any farther proof of their unsuitability. Could the dollars these manufacturers make by these foods be laid side by side with the corpses and cripples they cause, the path made by the money might reach across the continent, but the road paved by the innocent corpses would wind round the world, and the cripples would be represented by the telegraph poles spread along this silent and lamentable way.

Cow's milk carries less sugar than human milk, having only four per cent., consequently it has less fattening power. But this deficiency can be easily corrected by the addition of milk sugar or cane sugar.

The greatest difference and difficulty arises from the excessive amount of the proteids or tissue building

For safe infant feeding the running element, proteid, must be reduced and more sugar for heating the child, added to the food.

The proteid or cheesy part of cow's milk is difficult to digest, and causes stomach and bowel disturbance when not properly reduced.

material. These are generally over twice as much as in human milk, and being always the difficult part to digest, become a grave matter with most infants.

As the young of the cow is compelled to run and keep in motion from birth, this excess of proteids is necessary in cows' milk, and the calves' digestive organs are made strong enough to digest it.

But the young infant does not require so much proteid till about a year old, when it also commences to run about, and nature adjusts its digestive power to its necessities at each age. What the calf requires for strength and wear at birth, the young child does not require for a year later, and only then will the stomach of the child be able to digest successfully pure cow's milk in its natural state.

Why, you will ask, does nature refuse to allow a stronger digestion in the child? Simply because the digested result could not be consumed by the inactive child; and if digested would require to be thrown out by the kidneys to prevent poisoning the blood, and thus destroy the child's life through febrile disturbances and kidney obstruction.

Of these latter conditions we have many striking examples causing hundreds of deaths yearly in all large cities, and thousands of other children who barely escape death, very often suffering many weeks' sickness from bad digestive results. These are the infants fed on artificial foods by the generous and kind, but mistaken hand

There is most liquid proteid in human milk, and most cheesy proteid in cow's milk.

Cow's milk must be reduced till no curds show in the stools. Curds are the proteid in excess.

of the mother. Were it not for nature's protecting emesis and correcting diarrhea, many hundreds more would be added to the cemeteries in all towns and cities every summer.

But to return to the proteids. The excess of these in cow's milk does not represent all the difficulties. Their quality must also be considered. Proteids are composed largely of casein or cheese, and the balance of liquid albumen. This latter element is easily appropriated, requiring little digestion, and thus gives little trouble to the child, but the casein or cheese is very difficult to digest, giving great distress to many children. Of this latter, or cheese making material, we have five times as much in cow's milk as is present in human milk. This is the main cause of difficulty in feeding children with cow's milk. On the other hand, we have twice as much of the easily digested liquid proteid in human milk as there is in cow's milk.

Putting the five times greater amount of the difficult cheese stock with only one half the human complement of the easily digested albuminous stock, you will see at once the cause of difficulty in feeding cow's milk to children with delicate digestive power. All recent modifications of milk aim at reducing this inequality in proportions, and as nearly as possible simulating those in human milk. With a little care the mother soon learns to do this successfully, and the infant grows accordingly.

Own your own cow; feed only pure ground grain, bran and hay; have clean vessels and milkman; keep the milk on ice and feed it raw.

Making Perfect Cow's Milk.

If possible own your own cow. Have her tested for tuberculosis. See that she is otherwise healthy. Feed her with pure mixed clover and timothy hay. Mash her with pure bran and ground grain. Never feed her fruits or vegetables. Have one person do all the feeding. Avoid all waste foods from breweries and factories. Never feed more than the cow eats promptly. Give her plenty of water, but not very cold. Give her no fresh grass, or, if necessary, feed her entirely on grass, but this is not as good. Wash the udder carefully before milking. And also wash the hands carefully.

Milk into thoroughly clean tin or porcelain vessels, covered with a clean cotton cloth. Cool the milk rapidly in cold water and store it in small bottles in a refrigerator. Then you do not require to injure it by cooking (pasteurizing and sterilizing), except in hot weather.

Never warm it over blood heat when feeding, as doing so kills the cell life in the milk. Raw milk is alive and always better than sterilized milk when it is safe to feed it, as it is in all cool weather.

Jersey Milk.

The milk of Jersey cows is not so suitable for infant feeding as is that of the common grade breeds. The former are more delicate and more variable in their milking qualities and are thought more liable to sickness. They are interbred so closely that they have not the vigor and strength of the common grade animal, and their milk is so rich in butter fat that it is very difficult for even an

Jersey milk is not suited to infant feeding. Common grade milk is the safest.

Never buy milk made in or near a city. Always select that made twenty or more miles in the country, where farm foods are cheap and city slops and waste brewery grains dear.

adult to digest any quantity of it. Such milk cannot be used in feeding very young children or the older ones with weak digestive powers.

How to Buy Milk for the Baby.

Never think the milk is right unless it agrees with the baby and produces yellow, inodorous, mustard paste stools. Continuous supply of milk for house purposes is no proof of goodness or purity. Adults use little of it and have strong digestive organs.

Never buy milk made in or near a city. The cheapest food suitable is generally the one fed to the cow. Waste vegetables and brewery or distillery grains make bad milk. Buy from a respectable dealer milk made on high land twenty or more miles from the city. Examine the cleansing facilities of your milkman, or send your own vessels for the milk. Buy from the dealer who ships all his milk in glass from the country.

Examine carefully for dirt in the bottom of the glass bottle bringing the milk to you.

Do not buy milk which sours rapidly, except this occurs only in hot, showery weather.

Irregular souring means unclean vessels or old milk.

Do not buy Jersey milk for infant feeding.

Do not buy milk from an unclean milk depot, dirty man, or a drunkard.

Pay full price to the reliable dealer and exact full and perfect conditions in the milk at all stages.

Buy the infant's milk from a reliable dealer. Pay full price for the best you can get in glass. Report all errors to the proprietor at once.

Exposure to the air always spoils milk. Pasteurizing will correct this error. It stops the souring of it.

By buying milk made a long distance from the city you avoid having the brewery grains and slops of the city used as cattle food. This milk is always bad for infant feeding.

By buying from dealers who ship to the city only in glass, you should secure milk in clean bottles, as then the dealer must have proper facilities for cleaning the large number of bottles perfectly.

By buying from such dealers you reach a more reliable class of men with more money invested in the business.

Also you secure the fewest exposures to contamination and infection through air and vessels before the milk reaches you.

You also avoid having your neighbor's bottles taken to the street and filled from a can, to hold your daily supply. This is a common practice which I have seen milkmen do in Detroit.

Requisites for Producing Healthy Cow's Milk.

1. Two or more healthy common cows which secrete a good quality of milk. They should be tested for tuberculosis by the tuberculin test. Any graduated veterinary surgeon will do this for you. The milk from a herd is generally preferable to the milk from one cow, as there will less damage ensue if the milk of one cow is wrong at any time. The milk of Jersey cows is unsuitable for infant feeding.

2. Plenty of fresh water, mixed clover and timothy hay, ground grain and middlings to feed the cows.

All milk contains bacteria; heat destroys all forms of them. Healthy raw milk is the best except in hot weather.

While many cows secrete a fair quality of milk on grass food, this is an uncertain quality, being affected by rains, temperature, weeds, land, and levels. Such milk too often causes indigestion and colic with green stools.

3. A clean, airy stable, thoroughly ventilated.

4. A clean man to do the milking.

5. Thoroughly clean, scoured, and scalded vessels to receive the milk. The pail into which the milking is done should be covered with two layers of a clean cotton cover to prevent any dirt falling into it. The milk will pass through this cotton cover. The cow's udder should be thoroughly cleaned before the milking commences. This is best done by brushing and washing.

6. Straining and rapid cooling of the milk and keeping it on ice till used for feeding.

7. No exposure of the milk to the air that can be avoided, as exposure spoils the milk very rapidly by allowing bacteria from the air to enter it. These bacteria multiply rapidly and cause souring.

8. Pasteurization in hot weather always. This is necessary to prevent bacterial changes of all kinds. It is also necessary to destroy any pathological germs that may come from unhealthy cows. Where the cows have been tested for tuberculosis and show no evidence of other diseases this may not be required by people who use plenty of ice for keeping the milk.

During cold weather pasteurization is not needed when you have absolute control of all other features in the milk. A healthy raw milk is to be preferred always, as it more nearly follows nature's plan.

Test the cows for tuberculosis when feeding raw milk to the infant.

Bacteria in milk causes souring. They float in the air and lodge in the milk. Heat destroys them.

Tubercle in Milk.

The milk from tuberculous cows is now considered capable of carrying tubercle bacilli even when there is no apparent disease in the cow's udder. Veterinarians demonstrate this transmission of the disease to calves and pigs when fed on it, but clear proofs of transmission in this way to children have not yet been produced. It must be remembered that the digestive fluid of a healthy child will destroy these bacilli and prevent infection through this source, but in delicate children with damaged or abraded digestive organs, as in indigestion or diarrhœa, the digestive fluid is weak and infection from these tubercle bacilli may occur through these abraded surfaces. Here sterilizing or pasteurizing destroys these bacilli and thus prevents this infection.

Bacteria in Milk.

Many bacteria are found in cow's milk. These may come from exposure to the air or from the exit tubes in the cow's udder or from unclean vessels. The principal evil produced by them is the fermentation or early souring of the milk. These bacteria are also destroyed by heating the milk in pasteurization and thus the milk is prevented from souring.

In very hot weather this heating or pasteurizing should be repeated every twelve hours to be successful.

Sterilizing Milk.

Since the necessity for sterilizing milk has been recognized, many people believe that this process makes all

Sterilizing means boiling. It kills all disease and souring germs, but does not otherwise improve the quality of milk.

milk suitable for infant feeding. This is of course a great mistake. Sterilizing milk will prevent it from souring for a few days, if the air is completely excluded afterward and the milk kept cold. With good, clean, fresh milk sterilization enables parents to provide the regular food for the child in hot weather and while traveling. This avoids the dangers from frequent changes of diet and is very important.

Milk is sterilized by heating it to the boiling point and retaining it there for twenty minutes to half an hour. It must be sterilized in the bottles which are to hold it till used, and stoppered with sterilized cotton and kept in a refrigerator. The greatest care must be exercised not to allow any exposure to the air after sterilizing, as this will destroy all the good effects of this treatment and cause souring. Each bottle should contain only one feeding, and any balance left after feeding should be thrown out.

Pasteurizing.

This is the latest process advocated in treating milk to prevent its early souring and spoiling, especially in hot weather. In this process the heating is only carried to 170° F. and retained there for twenty to thirty minutes. This temperature is sufficient to prevent any souring changes in the milk. Here the heating must also be done in the bottle, which must be stoppered while hot with sterilized cotton and placed in a refrigerator.

Two ways are used in domestic practice for pasteurization. Both are simple and effective. In one the bottles are placed in cold water, which is placed on the fire. As soon as the water commences to boil the bottles are

Pasteurizing means heating to 170° F. for half an hour. It kills all germs and does not change the taste of the milk.

stoppered and removed. In the other process the vessel with the milk is placed in boiling water, which is then set back on the stove where it will not boil but remain hot. The milk is left in this hot water for half an hour and then removed. This process is not suitable where bottles are used on account of their liability to break when being filled.

As milk treated in this way soon spoils after opening the bottle or vessel and exposing it to the air, only such amount should be placed in each container as will be consumed at one feeding. Where more than one feeding is contained the balance left must again be treated as at first to preserve it. Exposure to the air causes a new souring contamination and must have heat repeated to correct this.

The Arnold sterilizer (Figure 14) can be used for either pasteurizing or sterilizing. The process followed is to prepare the full mixture for the day and put one feeding in each bottle. There are eight bottles. The bottles are then stoppered with raw cotton, being careful first to wipe all milk from the mouths of them. The bottles are placed in the rack of the sterilizer, covered up and placed on the fire, with the pan half full of warm water. About an hour is required on a hot stove for sterilizing and a shorter time for pasteurizing.

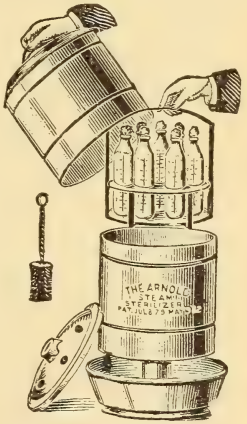

Figure 14. Arnold Sterilizer.

Where the milk is designed for traveling or to keep a week or more, the sterilizing must

Sterilizing or boiling changes the taste of milk and reduces its nourishing power.

After sterilizing or pasteurizing always exclude all air with cotton plugs or seal hermetically.

Pasteurization is preferable to sterilizing. It does not change the taste, coagulate the liquid albumin, or kill the milk cells.

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be repeated two or three days in succession in order to kill all souring and pathogenic germs. Care must be observed not to let the cotton plugs touch the milk. For transhipping or carrying rubber plugs well boiled should replace the cotton ones. Lime water should not be added to milk before sterilizing, as it causes the milk to turn brown. Bicarbonate of soda does not produce this effect and should be used instead of the lime water, or add the lime water at the feeding time.

Sterilization vs. Pasteurization.

The effects of sterilization on the milk are:

1. Changed taste by boiling.
2. Coagulation and loss of the serum albumin.
3. Change and increased difficulty of digestion in the casein.
4. Evaporation of part of the fats, and corresponding decrease in nourishing power.
5. Destruction of the living cells in the milk.

The effects of pasteurization are:

1. No change in taste.
2. No coagulation of serum albumin.
3. No perceptible difference produced on the casein, or its digestibility.
4. Less evaporation of the fats.
5. Decreased nourishing power.
6. Destruction of the living cells in the milk.

Too much boiled milk causes scurvy and rickets.

Milk is not improved in any way by heating, except to prevent souring and kill disease germs.

All these changes, by heating, point to the desirability of raw milk, like the mother's, when it can be obtained pure.

Is Sterilizing or Pasteurizing Beneficial?

As boiling makes the albumen of an egg hard, insoluble and difficult to digest, so does sterilization or boiling act on the albumen of milk, and also render parts of it difficult to digest. When we consider that the coagulum or cheese gathered in a pint of cow's milk when heated and peptomized is five times greater than that formed in the same amount of human milk, we can realize how easily a hand-fed child can become a sufferer from indigestion from slight errors in its milk. In fact in many it is very difficult to avoid this form of trouble when feeding any form of cow's milk, while with some others it is an impossibility to feed it in any form, and perseverance in doing so will even kill the children.

Remembering this difficulty of digestion which occurs mainly with the casein of the milk, it can readily be seen that any treatment by heating which increases this difficulty should only be used when absolutely necessary.

As cold is the perfect and sure preventive against fermentation or souring, and as raw milk is more nourishing and easily digested than either sterilized or pasteurized milk, it follows that these processes should not be used except in warm weather.

The experience of the medical profession at present is adverse to feeding young infants on cooked food. Many cases of scurvy, eczema, and imperfect development have

Milk made from brewery grains, slops, waste vegetables and other poor foods is not improved in quality by sterilizing or pasteurizing.

An infant requires a fair amount of raw milk. Human milk is always raw.

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appeared within the last few years, and these have often been traced to the too general sterilizing of the milk with which these children have been fed. It is much to be regretted that the public have become too much imbued with the supposed advantages of cooking the milk, and have seized on this process as a means of correcting all imperfections and impurities in this food during the last few years. So much is this practice adopted now, that some forms of disease, new in this country, have become very evident, and cures of them are obtained only by feeding entirely raw food to these children.

While undoubtedly during hot weather sterilizing and especially pasteurizing are beneficial and necessary where absolute cleanliness and a milk temperature below thirty-five cannot be maintained, yet parents should remember that these processes should be followed only for such time as the hot weather continues.

Unfavorable Results in Cooking Milk.

We have before referred to the mistaken idea among so many parents, that sterilization or pasteurization made any and all milks suitable for infant feeding. This is a very grave error and one that has sacrificed the lives of many children. Heat can only destroy the pathogenic and fermenting germs, and prevent farther damage from them. The errors which occur from food, breed, nursing, health and treatment of the cow are beyond any correcting influence of heat, and must always be calculated on in selecting the milk supply.

The volatile elements in milk are driven off by boiling it. Cooked milk does not make bone like raw milk. The children are not so strong.

While we acknowledge all the beneficial anti-souring effects of heat on the milk which is nearly the sole food of the child for the first six or eight months of its life, experience compels us also by the results we see on many children thus fed, to recognize that this heating of the milk has also a very injurious effect on the development of the child in many cases. This bad result is shown mostly in the bony development, and is evinced in the slow growth of teeth, and the weakness and tardy development of bone. These, combined with a pale color and weak muscles make many a large child, as well as the small one, weak in the limbs and slow in walking. The opening in the head long remains large, closes roughly, and often leaves the head flat on the top. Such children become rickety or scorbutic, and the large increase in numbers of these since sterilization has become a popular practice in feeding them, shows that these results are largely due to feeding too much cooked milk.

The proof of this error lies in the fact that these children improve rapidly when fed on raw milk. There are elements, volatile in nature, which are driven out of the milk by heating. These are essential to the growth and development of the young, and should be retained if possible in the milk.

Condensed Milk.

This makes large, fat babies, and many think this proves its suitability as food; but size is frequently the only feature of which these children can claim possession. They are behind in everything else—cutting teeth, walking, activity, mental capacity, complexion, and symmetry.

While it is valuable in many cases as a temporary food, it should not be relied upon as a continued diet. It is always short on fat or cream, and carries an excess of casein. Some brands of it are preserved from decompo-

Figure 15. One of the results caused by feeding sugary and weak foods, such as condensed milk.

sition by the addition of cane sugar, which is very fattening, and causes large, sluggish babies. The excess of casein or cheesy stock in condensed milk generally causes obstinate constipation

CHAPTER V.

THE ELEMENTS IN MILK AND PREPARATION OF MILK FOODS.

Constituents of Milk.

Nature always uses a dilute food for infants. Milk is seven-eighths water and only one-eighth food.

Human milk is composed of

Water, 87 to 88 parts, and

Solids, 12 to 13 parts in the hundred.

The solids are made up of

Cream or fat, about 4.00 per cent.

Milk sugar, 7.00 per cent.

Proteids, 1.50 per cent.

Salts, 0.20 per cent.

Let us look for a moment at these constituents.

The water serves as the diluent of the solids, and is the drink, or liquid, needed in the body for all physiological purposes. Mark the proportion that it bears in the food—over eighty-seven per cent. of the whole amount; and in future efforts to feed a child, do not forget that Nature calls for a dilute food.

Now note the solids and the work each performs in feeding the child.

The 4 per cent. of fat is consumed in the growth and heating of the child (in making nerve and bone), and also in lubricating the bowels. The surplus not needed in

More than one-half of the solids in milk is sugar. This shows the great importance of this element in infant feeding.

Proteid is the most difficult element in milk to digest. To it are due most diarrheal attacks.

warming the infant is always utilized in making soft, regular stools. No harm can come from an extra amount of fat in the food, for it always passes off as waste in this way, and generally assists in removing constipation. It is the fat, or cream, which gives the yellow or orange color to the stools, thus showing that the fat is abundant in the milk.

The 7 per cent. of sugar in the milk is what fattens the child, and also assists in the heating process. From this it can be seen why hand-fed children frequently become so large from a diet of condensed milk, which is preserved with sugar.

The 1.50 per cent. of proteids is the tissue builder and strength-giving principle. From this the child receives its bone, muscle, nerves, skin, etc. This is the feature which varies most from cow's milk in the amount present, and consequently is the constituent which gives the child the greatest trouble in digesting cow's milk.

The 0.20 per cent. of salts, being largely lime, is the hardening material for the bones. It also assists in the blood formation.

This combination of liquid and solids cannot be imitated in any laboratory; consequently, there is only one ideal food for an infant.

Raw Milk.

All nursed children are fed on raw milk. This is a very important fact, which humanity, in feeding their children, have commonly forgotten, especially those who advocate Sterilization and Pasteurization continuously,

All animal foods are most easily digested when cooked very little.

Raw milk is more nourishing than cooked milk, but sours too rapidly in hot weather.

without carefully considering what are the necessities demanding these processes.

The nursing child draws the milk freshly made in its natural condition, and at once the process of appropriating to the new body commences. No opportunity for evaporation of its volatile constituents is offered; no chance for fermentation from exposure follows; no destruction of its living cells can occur from cooking it. In this natural condition, this easily digested food, free from bacteria, enters the delicate stomach of the babe. We say easily digested, because this is a nitrogenous food and not a starchy one.

Mark the difference. A nitrogenous animal food is most easily digested without cooking, as witness the raw dietary of all carnivorous animals, who eat to repletion of this food alone. On the contrary, starchy foods, where taken as raw grain, must be fed most carefully in small amounts. Note the extreme care with which horses and cattle have measured out to them this raw starch. Who is not familiar with the bad results—colic and death—produced in them when this extreme caution is not exercised? Even one error causes fermentation and abdominal swelling enough to destroy their lives. The carnivorous animal suffers no harm from a full meal of raw food; the herbivora would be killed every time by such an indulgence in raw starch—grain.

So it is with our milk. If, while fresh, it were humanized and fed raw to our delicate children, we would have much less of the gastric and bowel derangements with

Boiling milk kills all bacteria and disease germs, but does not improve it in any other way.

which we have to contend. But this is impossible in cities, so we have to approach this condition as nearly as possible for success. Like as we feed with impunity raw eggs, milk, and meat juices to our typhoid patients, so should we remember to feed raw milk to our delicate children. With the typhoid condition we have our most pronounced digestive disturbance, and where is the parent who would not hear with horror the proposal to feed such a case with cooked eggs and cooked meats? So should we all be impressed with the same horror at feeding cooked milk as a constant diet to an infant. At times it must be used for short terms (in summer), but only for such short terms should it be used.

We are all familiar with the changes wrought by heat in eggs and meat, but as there are not visible such changes in milk by heat, we do not think them present. Let us look at these changes for a moment, and become familiar with them as we are with the hard-boiled egg or the roast beef.

Cooking it does not change

- The 88 per cent. of water;
- The 7 per cent. of sugar; or
- The salts.

But it does change

- The liquid albumen into a solid like that of the egg;
- The live cells in the milk into dead ones like hard cooked meat;
- The fat into larger globules, less what is evaporated; and
- The casein into a less digestible form.

Above all this it drives off all the volatile odors natural to milk.

With these changes the labor of digestion is materially increased, and the nutrient properties correspondingly decreased.

Let us once more observe Nature's plan. See how invariably nitrogenous, or meat, diet is consumed in the raw condition by all birds as well as by many animals.

Mother's Milk vs. Cow's Milk.

Mother's Milk is raw food,
Freshly made, has the
Proper proportions, is
Free from bacteria, is the
Proper temperature, is
Never exposed to the air, is
Thoroughly alive, and
Cannot be infected
Before reaching the child's stomach.

Cow's Milk is
Nearly always old, has
Been exposed to the air, is placed
In doubtful vessels, always contains many
Bacteria, may require
Sterilizing or pasteurizing, which
Injures the quality and
Kills the milk cells. It is made
From uncertain food. The cows are
Exposed to the weather and often make
Irregular and wrong proportions in the milk, which
Varies continually while

Stable fed cows give the best sample of milk, when pure hay and grain are fed alone.

Fresh raw milk is alive. As such, some of its elements enter the infantile blood without being digested.

Made from grass, which
Is affected by the rains in summer and
By cold and wind in spring and fall, and
By weeds and herbs, and
By low, wet, or sour ground at all seasons.

Life in the Milk.

All tissues are made of cells, and according to the structure required is the type of cell used. Bone, muscle, nerve, skin, membrane, each and all, are made from their own peculiar cells, invisible to the eye, but clear and distinct under the microscope. So with the blood of the body; its solids are cells, and from the free supply of these healthy cells is the body built up and all the duties of different parts performed.

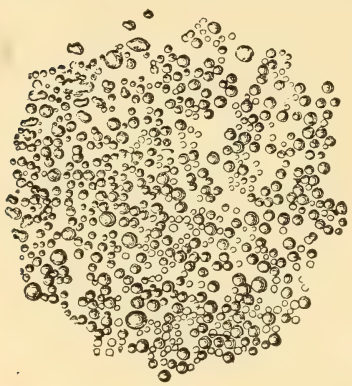

Figure 16.
Healthy cells seen by the microscope in healthy milk.

With a bountiful supply of blood are the breasts of the female enabled to secrete milk. Can it for a moment be supposed that anything dead enters this process or its result? Who would for a moment entertain such a thought? If we cannot see life in the cells forming our skin, will we forsooth say the skin is dead? If we cannot see life in our nails, do we for a

Feeding cooked milk entirely will produce scurvy in some infants.

moment think them dead? So would we express our belief in the life of all parts of our body, and all are made from the blood.

Will we for a moment doubt, then, the life of this liquid itself because we cannot see its cells move? Or will we doubt the life of this other liquid—milk, which receives its origin and existence from the blood, because we can not see its cells move? No more right have we to doubt the life of milk than we have the life of any other part of the body. Why, then, must we slaughter its cells and the life they contain before using it to impart fresh life and energy to the nursing babe? Certainly, we should have good reason for violating Nature's plan before doing so.

Small wonder is it, then, that infants fed on cooked food entirely, suffer from scurvy, losing all power in their limbs, like the sailors of old, who were continually fed on dead food, and also like those sailors recovering at once when fed on raw milk, meat juice, and fresh fruits.

Such cases occur among our infants under a year old, and form a sad commentary on the boasted skill which dictates their dietary.

These cases show the necessity of always nursing when possible, and when not possible, of so securing a clean milk that it can be fed raw, at least during all cool weather. Those who own their own cow can, of course, feed the milk raw to the infant, in preference to having it cooked, even during the warmest weather, when the utmost cleanliness is observed with hands and vessels, and ice is freely used to keep it from souring.

Any intelligent mother can learn to humanize cow's milk for the baby in a short time.

Home Humanization of Milk.

Human milk and cow's milk contain the same ingredients, but in different proportions. Where the mother's milk fails, either in amount or quality, it becomes a necessity that she at once learn to alter the proportions in good cow's milk to suit the digestive organs of her child. The day for hap-hazard, guesswork, or friendly advices in feeding her infant should for this mother have passed by. As she applies her education, thought, and study to all the details of her daily occupations, she cannot afford to say, "I need not apply these also for the safety of my baby." Certainly it is not in human nature to think she would for one moment omit this most necessary and pleasant duty, when once she recognizes her power and ability to perfectly do it.

It is only within a very few years that this important subject has been so simplified that any intelligent mother can confidently master the details, and make baby feeding a success.

As there are only five elements in either breast or cow's milk, and some of these may require no change, the mother will find her duties as follows:

Cow's milk.

Cream—increase or decrease, as the child's stomach and bowels demand.

Proteids—decrease always.

Sugar—increase always.

Salts—decreased, by dilution with water.

Water—increased in diluting the other elements.

To make those changes requires standard strengths of

Dilute pure cream and add sugar water. This makes a safe baby food.

the first and third ingredients—cream and sugar, and then the requisite increase or decrease is easily made to suit each child.

Cream.

The ingredients in cream and milk are practically the same, except in the amount of fat, of which there is from 8 to 12 per cent. in ordinary gravity cream. This makes the ingredients in cream—fat, proteids, and salts—from two to three times greater than in human milk. Sugar is only 4 per cent. when it should be about seven.

By diluting cream two to three times with boiling water, we make the proportions of fats, proteids, and salts equal to that in human milk. By then adding enough milk sugar to each 7 per cent. in the diluted mixture, we have practically a human milk. This mixture will require lime water or bicarbonate of soda to make it alkaline also, like human milk.

Cream for domestic purposes may be bought as cream or raised by cooling the milk. Where bought it is necessary to know whether it is separated by a Babcock separator or by the cooling (or gravity) process. For the small amount needed for one child, it is perfectly satisfactory to buy good milk and raise the cream by the cooling or gravity process in a refrigerator.

One quart of milk placed in a glass Mason jar and then in ice water, or upon ice, for four hours will yield ten ounces of cream, carrying 8 per cent. of fat. If allowed to stand six hours on the ice, it will give six ounces of cream having 12 per cent. of fat. This is the better one to use. These may be taken off by skimming or by

Spring grass and stable feeding make the richest milks. Twelve per cent. cream diluted properly is a good baby food. It cannot be surpassed.

siphoning off the milk from the bottom and leaving the above amounts of cream in the jar.

During the spring season, when grass is abundant, and also when cows are stabled and well fed, the time required for setting the milk may be reduced, respectively, to three and five hours, as then the milk is very rich. On the contrary, in very warm weather, and with very thin milk, the time of setting may be increased to five and seven hours. These changes in time will generally secure a standard strength of cream.

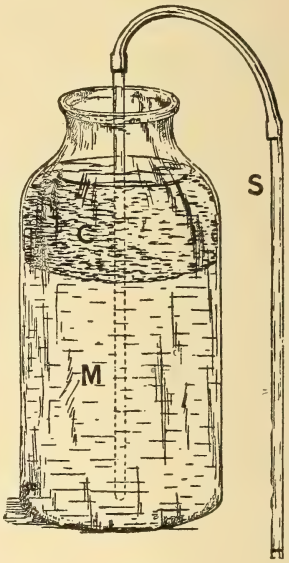

Figure 17.
This jar shows the cream separated from the milk, and the siphon in position to draw off the milk from the bottom.

The Babcock separator yields a cream of about 20 per cent. fat, and this must be remembered when buying cream for infant feeding. This is called centrifugal cream. Good, rich, gravity cream, as bought, carries about 16 per cent. of fat.

A knowledge of the varying strengths of cream, according to the way of separating it from the milk, is essential, and will show any mother the absurdity of feeding all makes of cream, in the same amount, to the infant, who can digest only an average percentage of this valuable ingredient. Only that amount must be fed which will make 3 to 4 per cent. average of fat in the food.

No infant will grow strong and vigorous, with a good color, on a food short of the proper percentage of fat.

Amount of Cream for an Infant.

The exact amount of cream (or fat) which can be fed to an infant must be found by the results of digestion. As cream is one of Nature's five elements, it must always be contained in the dietary. No food short of the proper proportion of fat can be correct, or secure the proper growth and perfect development of the infant.

Fat (or cream) makes heat; lubricates the whole digestive tract; fills out the hollow places on the surface, and makes bone and nerve. It is the element which gives the perfect finish and bloom to the child's development.

The correct amount of cream in each case is indicated by the bright yellow color of the stools, their soft, mushy consistence, and freedom from rank, foul odors. The color, odor, and consistence of the stools may be changed by excess of proteids, sugar, or starchy foods.

When too much fat is fed, the infant vomits small amounts occasionally, and the stools show the cream in hundreds of fine white, very small flecks, thoroughly mixed with the yellow stool, giving it all an ash-yellow appearance and a softer consistence. These stools are also more frequent. The fat in the cream is the only element which will give the bright yellow color to the infant's stools. No other diet can imitate this. Absence of this color is proof of deficient fat in the infant's food.

Proteids.

These are principally the cheesy part of cow's milk. As cheese is very difficult to digest, and also very constipating, so do we find the proteids act likewise in the

Increase the fat in the food when the stools are pale and the infant costive. Fat of cream makes the yellow color in the stools.

Proteid is the cheesy part of the milk, the tissue builder in the body, the difficult part to digest. It is needed more as the child creeps and walks.

infant. Great care must be exercised in adjusting this difficult dietetic item to the infant's capacity. When fed too freely it causes indigestion, vomiting, colic, green, slimy, foul stools, and also appears as curds in the stools. These curds are white, and may be any size up to that of a bean, or even larger. Occasionally they pass through the infant and cause no disturbance. This occurs in nursing infants. The usual proportion of proteids in human milk is 1.50 per cent. A change of a tenth of one per cent. will often make the difference between a healthy and a sick baby.

Proteids in Cream.

There are from 3 to 4 per cent. of proteids in the different kinds of cream, so that an addition of three to three and a half parts of water will make the probable right proportion of fat and proteids for the very young infant. This applies to gravity cream standing six hours.

Proteids supply the element that forms all the different tissues in the body, muscles, nerves, ligaments, fascia, membranes, skin, meshes of the bones, and all other parts requiring strength and protection.

They give to the infant

Strength,	Vigor,
Force,	Courage,
Energy,	Resistance.

As the infant grows older it exercises more, and consequently can consume more proteids, and thus becomes,

There are 12½ per cent. of solids in human milk; 7 of these are sugar. Though it is more than half of the food, it seldom gives any trouble in digesting.

at a year old often, able to drink milk without dilution. This point is reached by gradually adding the skimmed milk, and displacing sugar water in the cream mixture.

Milk Sugar.

This is the easiest element to digest in human milk or in cow's milk. Nature appears to have recognized this fact and put more of it in the milk than of any constituent. More properly, needing more of it, she made it easier to digest. There is 7 per cent. in human milk, 4 per cent. in cow's milk, and 4 per cent. in cream.

Milk sugar is not at all similar to cane sugar in its construction. While there is this dissimilarity, they act very much alike in the human economy, and cane sugar is commonly used instead of milk sugar. It is more desirable to use the milk sugar when possible. The sweetening power of cane sugar is very much greater than that of milk sugar, so that a little over one-half the amount of it will produce the same taste. This must be remembered in using it or substituting it for milk sugar.

Sugar supplies to the infant, economy, heat, and fat. This is why infants fed on sweet, proprietary foods or milk cured with sugar, like some condensed kinds, grow large and fat. Such infants are generally improperly or unevenly developed, because they usually receive too much sugar and too little fat. Among children fed with these improper proportions we usually find sluggishness, slow teething and, subsequently, coarse, soft bones, showing rickets.

Sugar-fed children make fine specimens of fat children, but usually they lack the bloom of health and energy.

When sugar disagrees with the infant, it causes colic, gives yellow stools, sour in kind, and scalding to the buttocks.

The mineral salts in the body correct all excesses of acid dietary in vigorous digestive organs.

The physician can usually recognize the dietary in the appearance of the child or its inequalities.

Infants overfed on sugar are liable to vomit sour, vinegary fluids, and also have loose, sour stools, which scald the buttocks. They are very colicky and cross, but soon improve when the proportion of sugar is reduced.

Mineral Salts.

There are about three times more salts in cow's milk than in human. In the process of separating the cream from cow's milk, there is some reduction in the amount of the water, and consequently in the amount of the mineral salts. These salts are then perfectly corrected in proportion by the necessary addition of three to four parts of boiled water, to secure the proper dilution of cream and proteids.

The mineral salts give the rigidity to the bones and the requisite alkalinity to the blood to keep all the fluids of the body in perfect solution at all times. As all proteids, and the tissues they construct, are coagulable in acids, it is requisite that a continually alkaline condition of the blood be present to neutralize each and every acid entering the body, and thus preserve the natural condition of the several parts. Were it not for these salts, great damage would follow in adults from excesses in sour drinks.

Water in Milk.

This is the great medium for distributing all the other ingredients in the food. Of all the solids, there are

Water is continually needed to preserve the proper proportions in the infant, especially in the sick one.

about twelve parts in every hundred of milk; the balance, about eighty-eight parts, is water alone—more than seven times more water than there is of all other constituents combined.

This enormous excess of water shows that it is no tax on the digestive powers, and parents should continually bear this in mind with their infants when restless, feverish, uneasy, or perspiring freely. Water (boiled) should be continually offered to these little ones when uncomfortable from any cause whatever, except vomiting. It should always be given in preference to their food in sick conditions, or where the mother knows they have received the usual amount of food.

In the summer season especially, every mother should make it a rule to regularly give the infant water to drink between feedings instead of nursing it or giving it the feeding bottle. Overdrinking of milk in hot weather causes the death of many infants every year.

Overfeeding of Casein.

The same bad result on the bowels which follows continued nursing of unhealthy mother's milk, also follows feeding cow's milk without reducing the casein or proteid part of it. This is invariably the case when the mother fails to be guided by the character of the infant's stools. A persistence in this injudicious course surely and early leads to indigestion, vomiting, and looseness of the bowels. In these cases the greatest caution must be observed in adjusting the food to the infant's digestive capacity. When healthy yellow, inodorous stools show this has been found, a gradual increase in the amount of food as the

Correct infant feeding is only known by the yellow stools. Cow's milk must be adjusted to this color always. When these are correct, the infant's future is assured.

The infant's milk is the same food as the parents' meat. It must not be considered as drink.

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stools allow it, will be permissible, and each increase must be proved by a two days' trial before trying another one, or before allowing any other change in the character of the food.

Parents cannot too strongly realize the great importance of careful adjustment of cow's milk to the digestive power of the infant. The gastritis and fever produced by injudicious milk feeding so often destroy the future digesting power of the infant, that physicians dread this result. The future life of the infant is so risked that this should always receive the closest attention. Continually in hot weather do physicians witness deaths from just such errors. With the proper adjustment of milk to produce yellow, inodorous, pasty stools, there is perfect health, growth, and comfort through all seasons.

Occasionally a foolish parent or friend will recommend allowing the infant all the milk it demands when thirsty, as on a hot day. Beware! This is poison itself. Many times has the writer witnessed the result of this fatal error. Fortunate for the child who can vomit and reject this poisonous load. For the one who cannot thus disgorge, a more serious result follows—diarrhea, fever, convulsions, and possibly death itself.

Milk-fed infants should always have their extra demands for drink satisfied with boiled water. The amount of milk fed daily is like the father's beefsteak—a fixed quantity, no more, no less, each and every day. And why should it not be so? Are they not the same kind of

Only by the stools can the mother be guided in feeding the infant. She must learn this yellow literature.

The amount of every element in milk is a constantly varying quantity.

food? Certainly they are, and there is as much harm in overfeeding one as there is in overfeeding the other.

Mixing the Infant's Food.

Having now considered the natural elements of infantile food and been compelled, from necessity only, to adopt an imitation of it, not having good human milk itself, we come to the mixing of the different elements in cow's milk in the proportion *suitable to the infant requiring it, not according to any fixed rule.*

We must not forget the immature or perhaps damaged condition of the digestive glands in the little one. It becomes the duty of the mother or nurse to intelligently read the digestion of the fat, proteid, and sugar in each and every stool. The salts and water will always be properly received and require no thought or study, as they are never changed by digestion.

This careful reading of the stools every day means the future success of the infantile growth and development; its neglect means *pain*, *emaciation*, *dwarfing*, *deformity*, and often *death*.

As we always require a slightly alkaline food like human milk, we must not forget that cow's milk is nearly always slightly acid in reaction. A fair proportion of lime water or bicarbonate of soda will give the necessary alkalinity to our mixture, and must be used always in the proportion of one teaspoonful to every two ounces of food.

Ingredients Needed for Correct Food.

We will now consider the ingredients needed for proper mixing of the infant's food. These are:

Cream.
Milk.
Sugar of milk.
Lime water or bicarbonate of soda (baking soda).
Water (boiled).

To obtain the cream and milk, put a quart of good fresh milk in a Mason jar, cover with a napkin, and stand it in a deep dish filled with cold water in which are two teaspoonfuls of common salt. After fifteen minutes, when well cooled, screw on the top with the rubber, and place it in the refrigerator. In six hours, fresh milk will divide from the cream, leaving eight ounces of cream and top milk having 10 to 12 per cent. of fat. The skim or bottom milk, twenty-four ounces, can be siphoned off with two glass rods and a connecting rubber tube (Figure 18), and kept in another glass jar. Where milk is shipped from the country, it is ten or twelve hours old, and the cream and milk will separate in two hours, if not sterilized or pasteurized before shipping. In milk thus treated, the cream will not separate.

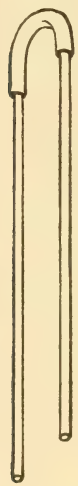

Figure 18. Milk Siphon. Put the short rod down in the milk jar, then draw the milk till it fills the long rod. By quickly lowering this below the bottom of the jar, all the milk will run out as needed.

The mother should buy four drachms of milk sugar and have it placed in a glass half-ounce ointment jar (Figure 19) by the druggist. This will about fill the jar, and the latter can in future be used as the milk sugar measure.

The healthy stools of hand-fed infants are formed always. They are not the soft, pasty character seen in nursing infants.

As stomachs have varying digestive powers and milk is a changeable strength, no fixed mixture can be used in feeding infants.

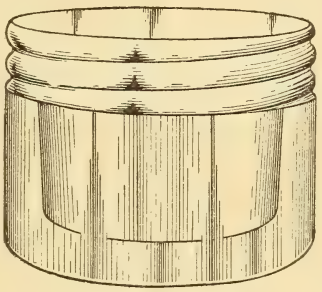

Figure 19. Sugar Measure Jar.

Lime water is made by adding a lump of lime about the size of an orange to a quart of boiled water. As water will only dissolve enough lime, it cannot be made too strong, no matter how much lime is used or how long it stands. It should be made fresh every week or two by adding fresh water. The lime gradually dissolves with renewed waters.

When preparing food for infants, mothers must always remember that there are two distinct classes of infants—the healthy, with perfect digestive organs, and the delicate, or those infants whose digestive glands are weak or have been irritated and partly destroyed by unsuitable food. In the latter, the stomach and bowels are easily disturbed.

The intelligent mother will find little difficulty in adjusting good, pure food to the different ages in healthy children, the yellow, inodorous, mustard-formed stools being a proof of her success.

With the delicate infant she cannot tell how many of the digestive glands have been damaged or destroyed till she tests them with the following foods, and reads their capacity for digestion in the amount of healthy yellow—

In preparing the first feeding, always use a weak mixture. Remember, the delicate infant's stomach may be only one month old, though the body be six or eight times more than this.

not unhealthy green, slimy, foul, watery, mixed colored, or constipated stools.

In direct proportion to the amount of unhealthy green, slimy, foul stool will the mother estimate the damage to the digestive glands and intestinal surface, and thus reduce the strength and amount of the food accordingly. By this view of the child's digestive power will she ascertain its true digestive age—not its real age—and then prepare its food to agree with such an age. This method will frequently demonstrate a delicate child of six to twelve months old with only enough digestive glandular secretions for a healthy infant of one month.

As cream contains all the ingredients of milk, and nearly in the same proportion, except three times too much fat and proteid, experience shows that it makes the most reliable basis of infantile food. The following dilutions show the proportions of ingredients and the probable age or weight of *healthy* infants for which it is suited. As sugar must always be added to these mixtures, no estimate is made of the amount of it in each dilution. Here it is only requisite to note the amount of fat and proteid (cheese).

No. 1. Cream, 6 teaspoonfuls, boiled water, 1 pint, make a mixture (containing 0.50 per cent. fat and 0.17 per cent. proteid) suitable for an infant newly born, of six to eight pounds in weight, or a delicate infant three to four months old. First add two measures of milk sugar to the boiling water.

No. 2. Cream, 4 tablespoonfuls, boiled water, 1 pint, make a mixture (containing 1.35 per cent. fat and 0.45

Always use the same measures and the same care in preparing the food. This work should never be hurried.

per cent. of proteid) suitable for a healthy infant eight or nine pounds in weight, two weeks old, or a delicate one, four to six months old. First add two and one-half measures of milk sugar to the boiling water.

No. 3. Cream, 8 tablespoonfuls, boiled water, 1 pint, make a mixture (containing 2.40 per cent. of fat and 0.80 per cent. of proteid) suitable for a healthy infant nine to twelve pounds in weight, one to two months old, or a delicate one, five to eight months old. Add two and one-third measures of milk sugar to the boiling water.

No. 4. Cream, 10 tablespoonfuls, boiled water, 15 ounces, make a mixture (containing 3 per cent. of fat and 1 per cent. of proteid) suitable for a healthy infant eleven to fifteen pounds in weight, two to four months old, or a delicate one, six to ten months old. Add two and one-fourth measures of milk sugar to the boiling water.

No. 5. Cream, $\frac{1}{2}$ pint, boiled water, 16 ounces, make a mixture (containing 4 per cent. of fat and 1.33 per cent. of proteid) suitable for a healthy infant thirteen to eighteen pounds in weight, three to six months old, or a delicate one, twelve to fifteen months old. Add one and five-sixths measures of milk sugar to the boiling water.

To each of the above mixtures at least two tablespoonfuls of lime water should be added. Cane sugar may be used temporarily in the above mixtures, but only half the amount required of milk sugar is needed.

When properly selected, the above mixtures should give healthy yellow stools of good odor and formed consistence. The average amount fed daily should be:

10 to 15 ounces on the seventh day.

20 to 30 ounces on the thirtieth day.

L. of C.

The happy baby shows it is properly fed in both the quality and quantity of its diet.

22 to 36 ounces at three months.
28 to 36 ounces at four months.
36 to 40 ounces at six months.
40 to 45 ounces at ten months.
45 to 50 ounces at fourteen months.
50 ounces at eighteen months.

After an infant passes the second month, if the stools are healthy, the mother may commence adding a tablespoonful of the skimmed milk to the whole mixture, and watch carefully to see if any colic follows, or slime and curds appear in the stools. If the stools remain correct in color, odor and consistence, a second spoonful may be added after a few more days, if the infant remains happy while awake and sleeps his full amount daily. If the infant vomits freely, disgorging the food in large quantities, it is overfed and should receive less at each feeding.

If it keeps vomiting small amounts of a spoonful or two, and is restless, particularly if the bowels are loose and yellow, it is receiving too much cream or sugar.

If the stools scald the buttocks or the vomit is sour, the child is receiving too much sugar.

Not more than two tablespoonfuls of the skimmed milk should be added to any one of these formulæ before passing to the next one. In Formula No. 5, the proportion of cream is the same as in human milk, and all increases after this is fed must be made from the skimmed milk, which only increases the proteids and sugar. The increase of proteids is needed as the child becomes older and more active. It should be made by changing one tablespoonful of the skimmed milk for one of the boiled water in

After the fourth month combine boiled cereals with the infant's food, if the stools show good digestion and regularity.

making the morning mixture for the whole day's feeding. Every change should be governed entirely by the healthy color, odor, and consistence of the stools, the happiness of the infant in the daytime, and its comfortable sleep at night. Without these favorable conditions any increase is dangerous.

As the utmost strength of the food should never exceed the eight ounces of cream in Formula No. 5, and half this amount of skimmed milk to twelve ounces of water at ten months old, the tablespoon additions of milk should be made only once every week or ten days, as the stools allow it, till this proportion is reached.

After ten months old, the object of the mother should be, in a healthy, strong child, to gradually change skimmed milk for the boiling water till the formula reads: Cream, 8 ounces; skimmed milk, 8 ounces; boiled water, 8 ounces.

After a year old, the infant's digestive power gradually increases till plain milk can be fed, usually at fifteen months old.

No healthy infant should be confined to an exclusively milk diet, except during the early months of life. The mother should commence by substituting a tablespoonful of some starch water (Remedies Nos. 2, 4, 5) in the day's food of healthy infants at four to seven months old. By watching the stools carefully, she will know when the infant digests it properly, and she can add another spoonful with safety. In this way the boiling water is gradually replaced by one of the starch waters or by a starch jelly (Remedy No. 3). The oatmeal starch or jelly should always be preferred where it does not loosen the bowels.

Nose first, eyes second, and fingers last, are all required in examining the stools.

Rice or barley water is suitable for loose bowels, or a combination of these with oatmeal water may make natural stools.

After the food for the day is prepared each morning, it should be emptied into as many bottles as there are feedings in the twenty-four hours. The necks should be wiped dry, stoppered with absorbent cotton plugs, pasteurized or not, according to the season of the year, and placed in the refrigerator or ice-box till needed for feeding.

In delicate children, where the digestive glands have not been too much damaged by improper feeding, the same principles and formulæ must be used. In these infants only the first, or weaker ones, are successful, and the mother must exercise the greatest vigilance of nose, eyes, and fingers, to detect in the gases and stools any imperfect work in the digestive organs. Only by her correct observation of these will she be able to gradually increase the amount and strength of this child's food. Scarcely ever will she be able here to supplant the boiled water by skimmed milk. Rather must she aim at nourishing this infant with weak cream mixtures, gradually adding starch waters and increasing the strength of the latter most rapidly, but never making more than one change or addition in any two days. By observing these rules and precautions most rigidly, those delicate children who have failed, with all kinds of foods, to make any advance in weight or comfort, can nearly always be brought into a thrifty, happy condition. For the worst of these cases, Remedy No. 26½, is particularly applicable.

Cross children, with loose bowels, will die if the diet is not corrected in proper time.

There is a small percentage of cases among those delicate children who apparently have inherited marked digestive weakness, and are not amenable to any treatment. There is another class, born healthy and who thrive well for some weeks or months, but who, through sickness or some continuous error in dietary, are so damaged that they have not enough healthy gastric glands left to digest the requisite amount of food to sustain life. These infants gradually drift downward in weight, flesh, color, and strength, till they become only marasmic skeletons, and finally disappear through some acute pulmonary or abdominal complication. Mothers must not be discouraged by these failures. The first are inevitables, the last are proofs of human inability to break away from inherited belief in a necessary cross era in infantile life, and a loose, foul condition of stools during teething or during the time popularly allotted thereto. These cross and loose conditions are allowed to continue till the infant's ability to appropriate food is entirely lost. There is only one end to all such cases.

Table showing the Strengths of Cream and Milk Mixtures.

	Cream, Ounces.	Milk, Ounces.	Water, Ounces.	Fat, Per Cent.	Proteid, Per Cent.
No. 1	6	0	16	= 0.50	0.16⅔
No. 2	2	0	16	= 1.35	0.45
No. 3	3	0	16	= 1.89	0.63
No. 4	3	1	16	= 2.00	0.80
No. 5	3	2	16	= 2.10	0.95
No. 6	3	3	16	= 2.18	1.09
No. 7	3	4	16	= 2.26	1.22
No. 8	4	0	16	= 2.40	0.80
No. 9	4	2	16	= 2.54	1.09
No. 10	4	4	16	= 2.84	1.33
No. 11	5	0	15	= 3.00	1.00
No. 12	5	2	14	= 3.24	1.33
No. 13	6	2	14	= 3.27	1.45
No. 14	8	0	14	= 4.00	1.33

The above table is intended to show how easily the addition of a little milk to a cream mixture will make it unsuitable for infantile feeding. Nos. 1, 2, 3, 8, 11, and 14 are pure cream dilutions, and all show three parts of fat to one of proteid, the usual proportions in human milk. The addition of milk in Nos. 4, 5, 6, 7, 9, 10, 12, and 13, has raised the proteid too rapidly, so that this three-to-one proportion is destroyed. While some strong infants might stand this rapid increase in the proteid, the most of them would soon suffer from nausea, colic, green stools, and diarrhea on such diet.

The gradual increase in strength is best obtained by the addition of cream, rather than milk, to Nos. 1, 2. 3, 8, 11, and 14. Less than one-third of the amount, in the additions of milk, is required where cream is used to give the same proportionate increase in fat, and one-third

Predigestion is valuable treatment for a limited time. It must be carefully done, to avoid the bitter, nauseous taste.

of the milk increase in proteid. This always makes a safe and reliable method of increasing strengths of food as infants grow older.

Only when infants are eight to twelve months old, strong and active, is it safe to add milk to the food, and thus rapidly increase the running element, proteid, in their diet. For such strong, hearty infants only, are those numbers with milk additions in the foregoing table constructed.

Such increases by milk should always be done in cold or cool weather. It is never safe to make them in the summer season.

Predigestion.

In some weak and delicate stomachs it becomes necessary to partly digest milk before feeding it. This, of course, applies to children who can only take milk as a a diet—generally to those under six months old. Such children are, of course, hand fed, and they are mostly those whose digestive organs have been badly damaged by unsuitable food, and also unsuitable quantities of food. They are suffering from these effects, and their milk must be made as easily digestible as possible, so that no vomiting or foul stools will follow feeding. Unfortunately, this process requires skill and attention to prevent spoiling the food, or developing the bitter taste which appears when carried too far. Children soon refuse this predigested food, seeming to form a dislike for it. It can be used for a limited time only. (For Predigestion, see Remedies Nos. 27, 28, 30.)

Where the child refuses to take the predigested milk or other food, an effort must then be made to aid the digestive

The free use of digestive assistants to assist weak stomachs in ordinary health, or during any sickness, should never be omitted.

The addition of malt extract to the starchy food for weak digestive organs should never be omitted. It should be mixed at blood heat, and just before feeding.

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power in the stomach by giving the digestive assistants (Remedy No. 43) just before or after each feeding. Mothers should remember that these assistants are not poisonous, and should be given freely where the stomach accepts of them. Their free use relieves the distress and rapidly strengthens the digestive power of the infant. So long as they show a material assistance to the child, they should be continued. This assistance is shown by the increased comfort, happiness, and sleep, and also by the greater yellow in the stools.

Substitutes for Milk in Tender Stomachs.

Where a child's digestion has been damaged so that it cannot digest cow's milk, and is still too young to be fed other than nitrogenous food, whey, egg water, or meat juice (Remedies Nos. 14, 8, and 26) will sometimes succeed as a substitute. A child six months old will take eight ounces of whey, the whites of one or two eggs, or the juice of one-half to one pound of round beefsteak daily. Of course, the amount taken must always be adjusted to the child's digestive power, being careful not to cause nausea or diarrhea.

Efforts should be made early to feed oatmeal or rice water (Remedies Nos. 2 and 5) in small quantities to these children, as they are very liable to become rickety and deformed from insufficient nourishment. These starch waters (oatmeal and rice) must be boiled at least three

Whey with well boiled rice or oatmeal makes a valuable food where milk disagrees with the digestion.

hours to make them digest easily, else they will cause diarrhea. This feature in cooking cereals of all kinds for weak digestive organs can never be overlooked without disastrous results to the patient. Half a teaspoonful of extract of malt should be mixed with them also, just before feeding.

The suitability of these substitutes must be judged by the perfect rest which the child enjoys and the healthy character of the stools. For their continued success we must carefully watch the child's growth, weight, and development, as at times a suitable food gives comfort but not growth, on account of the insufficient nourishment it contains. An error on this side is made occasionally by an overzealous nurse or parent, but in the great majority of cases, overfeeding is the error to be dreaded.

Whey as a Food.

In the tender and weak stomachs of very young infants, and also in older ones who have been damaged by injudicious feeding, it becomes necessary often to remove the casein from the milk before feeding it. As this is the part difficult to digest, it must at times be removed or predigested.

Removing it is easily accomplished by the use of liquid rennet, or pepsin (Remedy No. 43). As this rennet, or pepsin, assists in digesting the milk, it is an advantage to the food in delicate children. For this purpose milk should be at least twelve hours old, but never Jersey milk, as this always carries an excess of cream, which frequently nauseates and purges. Full directions accompany the liquid rennet, showing how to

A mother should be liberal in the use of good nipples, so as to avoid too rapid feeding. They require great care to keep them clean.

use it. Generally, rice or barley water can be added to this whey, after the yellow stools show that the infant digests it thoroughly.

Bottles and Nipples.

In nursing bottles, always select the one most easily cleaned. Those with wide mouths and graded sides are preferable. The simpler the shape and proportions, the better.

Nipples should slip on the neck of the bottle without any intervening tube. Plain black nipples with an air vent are the best. They should be shaped so they can be turned inside out and scrubbed easily. All tubing and corks must be avoided, as they are always poisonous and unsafe. They cannot be kept clean, and thus cause sickness. It is important that the holes in the nipples should not be too large, as thus the milk runs too rapidly. The child should be compelled to work for its food and take fifteen to twenty minutes in drawing it. Certainly, never should more be placed in the bottle than the child is safe in drinking. If any is left, it must be thrown out, as it is not safe to heat this again for next feeding.

Immediately after nursing, both bottle and nipple should be scrubbed and cleansed thoroughly and kept in soda or boracic acid water till used again. This scrubbing is a most important feature and requires plenty of soap and good brushes to do it effectually. The smallest speck of milk left on either nipple or bottle will infect and spoil the next milk passing through either of them.

CHAPTER VI.

FOODS.

Materials Needed for Correct Feeding in the First Year.

FIRST YEAR'S DIET.

Before three months, when very dry,
Diluted cream will stop the cry;
From three to six, when in a fix,
Cream and sweet milk be sure you mix;
From six to nine, whene'er he whine,
Cream, milk, and starch will suit him fine;
From nine to twelve, he'll creep and delve,
But meal and milk he'll never shelve.

For the Healthy Child Under Six Months of age are required:

Pure milk.
Raw milk in cool weather.
Pasteurized milk in hot weather.
These are used in the form of
Cream for yellow stools, with enough of
Skimmed milk till curds show in the stools.
Milk sugar.
Lime water.
Boiled water.
Well boiled oatmeal starch (Remedies Nos. 2 and 4) occasionally for some children in the fifth or sixth month.

Too much cream causes vomiting and loose bowels.

Too much sugar causes colic, vomiting, and soft, sour, scalding stools.

For the Healthy Child Over Six Months and Less Than a Year are required:

Pure milk.

Raw milk in cool weather.

Pasteurized milk in hot weather.

These are used in the form of

Cream for yellow stools, with enough of

Skimmed milk till curds show in the stools.

Cane sugar.

Lime water.

Boiled water.

Starch, in the form of oatmeal, rice, or barley water (Remedies Nos. 2 and 4), well boiled for three hours and added to the milk as stools show perfect digestion.

For Feeding to Assist Nursing.

Under Six Months.

Pure gravity cream diluted from two to four times till the stools show perfect yellow color.

Milk sugar to a mild sweetness—one teaspoon to about three ounces, or half that amount of cane sugar. This amount of sugar may be increased for fattening some children with benefit.

Over Six Months.

Pure cream diluted two to four times, as shown necessary by the stools.

Starch—well boiled oatmeal, rice, or barley—diluted as the stools show necessary for perfect digestion. Sweeten and flavor well with the cream.

Safe feeding will allow only one change or addition in two days. In this time green stools show any errors resulting from the last change.

Make Only One Change Every Two Days or More.

Only one change in food, or one addition to the food, or increase in the food can be made at a time. Every change or addition must be proved by healthy stools before another can safely be made. This requires forty-eight hours. This interval of time shows all errors and secures correct work. By observing this rule, success can be always secured where that is possible.

By making more than one change at a time, or not waiting forty-eight hours till the stools prove the correctness of the last change, confusion and consequent failure are sure to follow.

By commencing with a dilute cream which is well digested, and working up gradually in forty-eight hour steps, the child's correct capacity is soon found without making errors or doing damage.

What is Pure Milk?

Milk made in your own stable or barn, or
Milk made in the country, *at least*
Twenty miles from the city, or
Any brewery, distillery, or wet goods factory,
Drawn by *clean* hands
Into clean vessels
From clean cows
Fed on clean food
In clean stables, and
Cooled in clean water,
Put into clean bottles,
Packed in clean ice, and
Delivered by clean milkmen.

Never buy milk made in or near a city. It is often made from the waste products of the city, and is unhealthy.

Human milk excels all foods in ease of digestion and ability to produce a perfect child.

The nearer any milk approaches human milk in its composition, the finer child will it produce.

Can Pure Milk be Made in the City?

In your own barn? YES.

Outside of it? No.

Your child's life is too sacred for you to tamper with it. Make your own milk if you have a barn. Otherwise spare no trouble or expense in finding the best country-made milk that can be secured. Do not buy Jersey milk. Jersey calves do not thrive well on their own mother's milk.

Order of Precedence in Infants' Foods.

First Year.

1. Mother's milk.
2. Wet nurse's milk.
3. Diluted cream.
4. Humanized cow's milk.
5. Raw cow's milk.
6. Pasteurized cow's milk.
7. Sterilized cow's milk.
8. Cream with oatmeal, rice, or barley water for tender stomachs.
9. Cow's milk with rice, barley, or oatmeal jelly.
10. Cow's milk with rice, barley, or oatmeal porridge.
11. Meat broths with rice or barley.

Second Year.

Spoon foods and pure milk drinks should be commenced early in the second year, when once the digestive

No hand-fed child is as fine and vigorous as it would be on healthy human milk.

organs have demonstrated their ability to digest starches. Then the different flours and grains, well cooked, can be used in rotation or alternated with boiled or baked potatoes. Also broths, with bread, crackers, and potatoes may form the staple of one meal daily. At fifteen to eighteen months the different meats, in small amounts, may be given to healthy children, with potatoes or bread, always watching the result of the dietary on the stools, and stopping any food which appears in them or causes green, slimy, watery, or foul stools. As the digestive power varies greatly, no distinct dietary can be prescribed. Only the general outline can be indicated, and this proven to be suitable in each case. Children who have been very sick will, of course, be much later and slower in digesting a solid diet than those who have always been healthy. Most generally this power is proportioned to the development of teeth in healthy children.

A fair amount of fruit, oranges, peaches, plums, prunes, grapes, or roast apple should be fed during the last half of the second year, carefully watching the digestive results with each fruit.

Amount of Food.

Herein lies, perhaps, the greatest source of trouble in feeding infants. The natural impulse of adults is to feed the child whenever the little one cries for it, or in fact for anything or for any cause. Four out of every five parents do it, and ninety-nine out of every one hundred friends always say the infant is hungry when it cries from any cause whatever, from an earache to sleepiness.

Overfeeding causes vomiting and green stools. An overfed child cannot sleep continuously.

Cow's milk causes inflammation of the stomach in infants when not properly diluted.

This hungry idea is applied to both nursing and hand-fed children, but most particularly the latter. It is not so easy for the nursing mother to make this mistake, as she always knows when the child has had a good meal, but even she frequently has fallen into the erroneous habit of nursing the child every time it cries. This is never advantageous to the infant, and frequently is an injury, as it does not allow time for the stomach to empty itself before new food is introduced. As the secreting power of the mother is generally limited and not in excess of the child's ability to digest all she can give it, we do not very often find damage from overfeeding of nursing infants except during the first two or three months, while the child is small.

In hand-fed children, overfeeding is the rule. So common is this that we have come to look for it always, and it is an agreeable surprise to find the amount of food properly gauged to the child's digestive capacity. In these overfed cases, the general complaint is crossness and vomiting in the young infant, with irregular disturbed sleep. As the child becomes older, these symptoms continue with unabated force, and colic with diarrheal disturbances is usually added thereto. The result is generally a badly disturbed household, or even a whole neighborhood may suffer from the continual crying of the child.

Even under these strained conditions of comfort and rest, the mother will generally receive from six to twelve recommendations daily for other and more food, from her

Only the mother or nurse who has had bitter experience in hand feeding is competent to advise on the amount of food for an infant.

The happy, comfortable condition is the only proof of perfect nutrition.

friends and neighbors. Most of these are impelled, by their natural kindness to a child, to think it must be hungry or it would not cry so much. Only the mother who, with her own child, has gone through this siege of crying and loss of sleep, gives the correct advice. She knows at once that the error is overfeeding, and the only escape is by reducing the food to the child's capacity for perfect and comfortable digestion. Then, and not till then, will the child resume its natural sleep and its happy laughing, playing habits of the waking hours.

The healthy, well digested yellow stools, free from foul odors, indicate when proper feeding is reached; and mothers must remember that with these stools the best growth and development are always secured.

The infant who sleeps well and comfortably shows also that enough of this food is given.

The healthy stools of the hand-fed infant are always formed and drier than those of the nursing infant.

Dilute Food.

Parents should always remember that Nature has made the infant's stomach to digest only a very dilute food. This is shown in the proportion of water there is in either human or cow's milk. Milk always carries nearly eighty-eight parts of water in every one hundred; and the remaining twelve solid parts that are in the milk must be the most suitable and easily digested kind, in order to have good development and a successful child. This is amply

Nature is not an inebriate. She dilutes her drink always. Twelve of solids to eighty-eight of water is her motto.

proven in feeding cow's milk, which is equally dilute with water, but in which the solids, though the same, are in different proportions. How much greater, then, must be the necessity of using a dilute food, when we try to imitate Nature's plan, and especially when we do not use the same, or as good a quality of food. Errors continually arise from using a too concentrated food, and a hundred deaths occur from *overfeeding*, for every child that shows any evidence of injury from *underfeeding*.

Proteid Milks and Foods.

As proteids are generally the most difficult element to digest in reliable infant foods, it is well to look at the proportions of this element in each of them. A glance at these proportions will generally give any mother an idea of the direction she must take in changing from one food to another.

Every mother should carefully prove, by first reducing the strength of the infant's food, that the curds in the stool, with slime and colic, are not due to overfeeding. Having demonstrated that, in this way, by diluting the food and thus reducing the amount, she cannot remove the curds, slime, and colic, she should then select a food containing less proteid. This will not always correct the digestive difficulty, but it will do so in the majority of cases.

Mother's milk contains - 1.50 per cent. of proteid.
Cow's milk contains - - 4.00 per cent. of proteid.
Cream contains - - - 3.50 per cent. of proteid.
Cream (properly diluted for feeding) contains - - - 1.16 per cent. of proteid.

Beware of proteid, or the cheesy food. This is what sickens the infant most frequently.

Diluted cream must be the foundation of the infant's food. Milk can be added gradually as the stools show perfect digestion and no curds.

Whey contains - - - 0.86 per cent, of proteid.
Koumiss contains - - - 2.66 per cent. of proteid.
Beef juice (expressed) contains 2.90 per cent. of proteid.
Beef juice (cold water process,
1 pound to 8 ounces) contains 3.00 per cent. of proteid.
Beef broth contains - - 1.02 per cent. of proteid.
Barley water contains - - 0.09 per cent. of proteid.
Rice water contains - - 0.09 per cent. of proteid.
Oat water contains - - 0.10 per cent. of proteid.

By diluting the cream with boiled water, the amount of proteid can be reduced to any percentage desired. Where this reduction does not bring success and comfort in the infant, the inference is that the fat in the cream also irritates the digestive organs. The mother should then select whey as the food next most suitable. As whey has only 0.65 per cent. of fat, it must be reinforced with some rice or oat (starch) water to nourish the infant successfully.

Where whey and starch water do not succeed or are not enough, then the meat juices should be added in part to the daily dietary. In doing this, the mother should note that the raw beef juices have about three times more proteid than the cooked one has, and consequently are more likely to loosen the bowels.

Mothers should not be advised into using patent foods, as these, when dilute enough for easy digestion, do not nourish the infant sufficiently, and rickets with a large abdomen surely follows.

Be sure your dilute food contains ALL the elements of nutrition. Only milk is safe. Condensed milk and patent foods are always short on cream.

Easily Digested but Unsuccessful Food.

Great care must be exercised that the mother does not purchase the child's present comfort at the cost of its subsequent success. This occurs when she selects a food, such as condensed milk, which is easily digested by the child, but which does not supply all the ingredients necessary for successful growth and development. With such foods, generally those rich in sugar, we find in time that the infant becomes rickety or scorbutic. Generally, enormous quantities of these foods must be taken to satisfy the child, and this causes dilatation of the stomach, a large abdomen, and subsequent weak digestion.

Any food, to be a success equal to Nature's plan, must carry Nature's elements in proper proportion. When it does not, the future health and strength of the child pay for the deficiency. If it inherits any weakness from its ancestors, this insufficient food will surely develop it in the child.

Home-Made Foods.

There are only two articles that can be used for infant feeding—milk and starch. Nature has supplied us with no other ingredients capable of being used for this purpose. True it is that egg albumen and meat juice are occasionally used as temporary expedients in sick children or those damaged by injudicious feeding, but they cannot be used for a constant diet, neither can they be prepared as safe, marketable infant foods.

Starch is the one ingredient upon which food manufacturers depend for their stock, and on which they exercise their skill in preparing their foods. Nor is their

Diluted cream, with milk and well boiled oatmeal starch, are always reliable after the first few months.

skill needed or used in any way other than any kitchen supplies and any good cook uses daily. Long continued heat changes flours and grains of all kinds into a more digestible form, and that is all manufacturers do or can do. They select the flour of wheat, barley, or oats according to their ideas of suitability. As all grains are composed mostly of starch, it matters little which is taken, as the varying quantity of fat in the grain is largely disseminated in the cooking process. Generally, the price of the grain settles the selection of the starch.

Chemistry shows us that cooking changes starch considerably, and that those changes resemble the first steps in the process of digesting starch in the strong, healthy stomach. To be effective, the cooking requires to be done perfectly, for a long time. Baking and boiling are the only ways of doing the cooking. Baking is a limited process, as the oven soon evaporates moisture and burns anything in it. Boiling is an interminable process and can be continued as long as necessary to produce the proper change in the starch. Hence, for effective and successful preparation of any grain or flour for a delicate or weak stomach, either in child or adult, the cooking can only be perfectly and successfully done by boiling.

This boiling of starch or grains must be vigorous, strong boiling, not simmering or soaking, and requires from three to four hours for perfect results. True it is that flours do not require so long as whole grains, but all kinds of starch are improved by long cooking. Where can this be so perfectly done as at home, where we get the fresh article daily and are sure the cooking has not been slighted? Is not this infinitely better than trusting this

All cereals require three hours boiling before being fed to an infant.

You cannot depend on any foods except those prepared in your own kitchen. All foods decompose in time.

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cooking to some ignorant stranger, as is done with patent foods, who may or may not do it perfectly, and who is not under your control? Again, is it not better and safer for your child that the food be fresh daily, and not exposed to any contaminating influence or environment, in its preparation or keeping? Certainly, it cannot be claimed that it is improved by age like unto wine, but on the other hand, is frequently damaged by age, even to decomposition.

When we remember that all these foods are made from the same stock as we make our bread, biscuit, and rolls for breakfast, we can realize the desirability of freshness and good cooking. How many are there of us who clamor for these foods of the aged style? How quickly do we resent our bread and rolls if they are only a few days old, not to mention the months in age always happening with these baby foods. Were it not that they are kept in glass or metal till in use, they would all be decomposed or dried up, as are all starchy foods by age and exposure.

One other resource, and only one, have these manufacturers in making baby foods. This is the addition of some barley malt to the preparation. Of so little value is this, that only a few of them adopt it. The ability of malt to assist in changing starch into a more digestible form was discovered by Baron Liebig, many years ago. It cannot ever be heated over 120° or this diastatic property is at once destroyed and the malt is useless, except for the sugar it carries. Where it is advisable to use

Avoid any food of which you do not know all the elements. Think of the infant's future. Do not gamble on its development.

Prepare only the amount of food needed for each day. Stale foods are risky and unsafe.

The infant's food should be at blood heat, neither hot nor cold to the mouth.

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malt, a good extract of it should be mixed with the food just before feeding the child, while the food is only warm enough to be swallowed. In this way all of its digesting powers are retained, and it assists the stomach in its work. Malt acts on starch the same as saliva, but is not nearly so powerful.

Amount of Food Prepared Each Time.

This is a subject which may often cause trouble. Again does the common law of the kitchen give us the answer. Enough starchy food for one or even two days can be boiled at once, and if closed in a Mason jar and kept on ice or in a cold room in winter, will not sour or decompose. Where ice cannot be used, more frequent preparation is necessary. Food left exposed to the air should not be used, as it spoils rapidly.

Temperature of Food.

In this subject we should aim at following Nature's plan. The nursing child draws its food at blood temperature, and mothers should follow this example. Food either too hot or too cold is an irritant to the young child's stomach, and tends to produce indigestion or diarrhea. As children grow older they are able to partake of cold drinks without damage.

Cooking of Foods.

Parents and nurses should always remember that the digestive organs of the infant are immature, and con-

Nitrogenous foods are damaged by overcooking. Starchy foods cannot be boiled too much.

Mothers must remember that baked foods are concentrated and must be fed in small amounts.

sequently weak digesters, easily disturbed, and difficult to correct when disturbed.

The preparation of their food always requires the greatest care. In preparing the animal foods, much heat damages them and increases digestive difficulty in direct ratio with its intensity and length of application. Generally, only enough heat should be applied to secure a thoroughly sterile and non-poisonous condition. With this amount of cooking all animal foods are more easily digested than with a greater amount, which dries and hardens all meats. They are also more nourishing.

Starches of all kinds require just the opposite treatment to animal foods. Starches are rendered more digestible, and consequently more nourishing, with intensity and length of boiling. When fed in an underdone or partially cooked condition, they cause indigestion and bowel disturbances.

All starches should be cooked by boiling for infant feeding. In this way they become well diluted with water, and are most easily digested. Baked or concentrated starch must be reduced with water to make it dilute enough for the infant's digestive power.

Starch Waters.

These are made by using rice, oatmeal, barley, or wheat, as desired. As the quantity of starch in all these grains is so nearly the same, they can all be made from the same proportions of grain and water.

Rice Water.—One tablespoonful of rice, one quart of water. Boil down to one pint. Or, double the amount of

rice, and continue the boiling for three hours, adding water regularly, so that there is a quart when done. Strain out the undissolved grain. Sweeten, flavor, and feed as it is.

Rice, Oat, or Barley Jelly.—These are made by soaking two tablespoonfuls of the coarse ground grain in cold water for twelve hours, and then boiling down to a pint. This jelly is used, diluted with milk, where a stronger food is needed. The amount required must be found by trial of the child's digestive power.

Preparations of oatmeal are used in constipated infants, and those of rice or barley in all loose conditions of the bowels. The preparations of oats are the most nourishing, on account of the extra amount of fat they carry.

Starch waters or jellies are the only suitable diet to mix with milk for infants when being weaned, or to add to the diet when the infant is not thriving on milk in its various needed dilutions.

Gluten.

Gluten is the outside layer of cells in all grain. It is the albuminous, or strength giving part of the food, and is the tissue-builder, or part which gives muscle, bone, and nerve to the consumer. It is much more easily digested than the starch or inner part of the grain (Figure 20). The starch, or inner part, is fattening and and also supplies the heat-giving properties to food. The glutinous part of the grain takes the place in vegetable

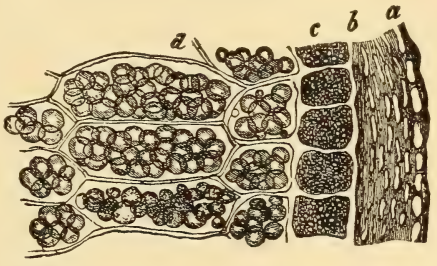

Figure 20. Shows the different cells forming a grain of wheat. *a* and *b*, branny covering; *c*, gluten cells; *d*, starch cells.

Give oatmeal water or jelly to constipated infants, and rice or barley waters or jellies to those with loose bowels.

The inside of all cereals is made of starch or flour. Next to this is a layer of gluten cells. These are the vegetable nitrogen, which is easily digested, and is a tissue-builder. This coat makes whole meals preferable to flour foods for infant feeding.

Infants starve on meat juices alone. Milk or boiled starches (cereals) must be added to them for feeding, when long continued.

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food that lean meat, milk, and eggs do in animal food. From this it is evident that where artificial feeding is needed in the second half of the first year, it is better to prepare food from the whole product of the grain rather than from the flour, which is mostly a product of the starchy or inner part of the grain. Here oat, wheat, rice, and corn meals are preferable to the white flour foods. As these must be cooked by boiling, another advantage is added to their use.

Meat Juices and Broths.

These should be classed with milk for nourishing properties and ease of digestion. Unfortunately, the advantages of this diet are overestimated by many mothers, and children are thus confined to them when they should be consuming the meat itself. A too long continuance of them tends to the rickety condition.

Meat Juices.—These are more nourishing than broths, as the heat coagulates the albumen in the latter. The juices are obtained by solution in water and by compression. The latter is preferable, being stronger and less bulky to feed to the little one. Machines somewhat similar to the sausage or grinding ones used in the kitchen, can be bought at the hardware store for about

Beef juice contains more proteid than beef tea. This excess may cause indigestion and diarrhea.

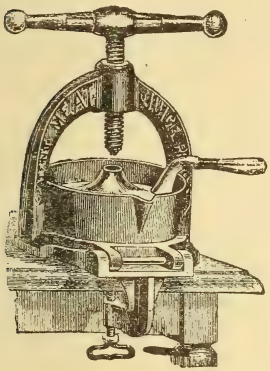

Figure 21. Meat Press.

three dollars each. In these, the meat is dropped into the top regularly while the crank is turned. An adjustable screw at the other end controls the exit, forcing the liquids and meat out separately. In a few minutes all the meat juice requisite for the day can be extracted with one of these machines. Where only a small amount is required, beef juice can be made by broiling the steak till it is soft, cutting it into small squares, and squeezing these with a lemon squeezer, or meat press, costing from fifty to seventy-five cents each (Figure 21).

Beef juice can also be extracted by the cold water process. A pound of finely chopped lean beef is added to eight ounces of water and allowed to stand from eight to twelve hours on ice. This juice is then extracted by twisting it in coarse muslin, or pressing it in the lemon squeezer or meat press. This process does not give such palatable juice as the dry process, because it carries less extractives. The taste can be improved by the addition of salt, sherry wine, or celery salt. A few spoonfuls may be added to milk without the infant noticing it. Care must then be observed not to heat the milk or juice above 100°, as this coagulates the albumen.

Beef juices must not be considered as foods. Animals fed on them alone soon starve to death. They are only stimulants, suitable for addition to other foods, and for

An infant will die on meat juices alone. Any person will live and thrive on milk alone.

very limited use. Sometimes a raw meat juice loosens the bowels too much. When this happens, the amount fed should be reduced, or changed to the beef tea or cooked form.

Broths.—These are made from mutton, veal, chicken, or beef, in the proportion of one pound of either to a pint of water. These are placed in a jar and allowed to stand for four hours before heating. They should be cooked slowly, till there is only a half pint of tea left. After cooling thoroughly, all fat must be removed and the remaining liquid strained through a cloth.

The following comparison of the chemical constituents of milk, meat juice, and broths will show their respective nourishing values. Milk is Nature's ideal food, and carries all the elements essential for the development of the infant.

MILK (HUMAN).

Fat	4.00
Sugar	7.00
Proteid	1.50

BEEF JUICE.

Cold water process, 1 pound of chopped lean beef gives 8 ounces.		Expressed juice, warm process, 1 pound lean beef gives $2\frac{1}{2}$ ounces.	
Fat	0.00	Fat	0.60
Extractives	1.95	Extractives	3.45
Proteid	3.00	Proteid	2.95

The warm process gives more extractives and a small amount of fat also. A comparison with the elements of milk shows a striking difference in the composition.

The nearer any food is to the composition of human milk, the more suitable is it for infant feeding. All the elements in milk are needed for success.

One meal each day of meat broth or juice is sufficient. This rests the stomach if properly prepared.

BEEF BROTH.

Fat	0.00
Extractives	1.85
Proteid	1.02

These figures show beef broth still less nourishing than raw meat juices. No meat juice should be considered a substitute for milk except for a short time, when the infant's stomach is so disturbed that it cannot take its regular food. In older children, who can digest starch, rice or barley should be boiled well and added to the broth. This makes one very suitable meal daily, with some bread or vegetable. Meat broths are stimulants and cause a good gastric secretion, preparing the way for more substantial foods. To the overfed child they are a relief, being a substitute for heavy food.

All meat broths and juices must be used while fresh. As they are the most fertile base in which bacterial poisons develop, we frequently have serious attacks of vomiting, cramps and diarrhea follow the use of beef tea which is two or more days old, and has been left exposed to air and heat. The same care is needed in keeping it pure and sterile that we find necessary with milk, and the same heating and bottling with sterile cotton corks is requisite to avoid contamination from the air. They should all be kept on ice. Meat juices, like meat, will spoil in a few hours in warm weather when not on ice.

The sudden addition of meat juices in large amounts to an infant's dietary is likely to produce acute Bright's

All meat foods must be prepared at home. Those bought in the stores are useless and dangerous for infants.

Scraped meats are occasionally needed in sickness. They make dark stools.

disease with dropsical swellings. A return to an entirely milk diet generally cures this very soon.

Proprietary Meat Juices.

There are many of these on the market, some of which are palatable and useful in emergencies; but where it is necessary to continue their use, it is better to use the freshly prepared home-made article. Where the prepared meat juices are used they must be largely diluted, as they are in the concentrated form, carrying a large amount of extractives and proteids. They can be mixed with milk or other foods, and form an addition to the infantile dietary. The writer most strongly urges mothers not to use any meat preparations in infant feeding except those daily and freshly prepared in her own kitchen. Old meat juices contain little infantile food, and are often poisonous to delicate infantile digestion.

Scraped Meat.

Where the ordinary liquid dietary fails to successfully nourish a child, raw meat can be fed in small quantities several times daily. The amount fed at each time will vary from one to two teaspoonfuls with increasing age.

The meat should be always tender and lean, beef or mutton being generally preferred. It can be scraped down fine or chopped minutely. This may be dressed with salt and fed cold or slightly broiled, as the child prefers. This is infinitely more nutritious than any of the liquid preparations of meat, and is easily digested when

Too much meat or broth causes dark, slimy stools and a sleepy, stupid baby, from blood poisoning with undigested animal products.

not cooked too much. Where not completely digested, very offensive stools will follow its use, and this feature should, when too intense, govern the amount fed daily. As the digestive organs are always at fault in these cases, we must expect a stronger odor in the stools than the natural one.

Frequently an infant will suck a piece of rare steak or roast beef with relish and benefit. Parents should remember that these articles should not be added to a full milk dietary, but rather should supplant the milk very largely.

Foods After Weaning.

Foods are divided by Nature's digestive and assimilative powers into two great classes. Nature has two prime duties to perform in feeding the human subject. These are:

First: To supply food for growth and strength.

Second: To supply food for maintaining the temperature of the body.

For the *first* she uses nitrogenous foods, which are as follows:

From the animal kingdom:

Milk,
Meat,
Eggs,
Fish.

From the vegetable kingdom:

Gluten,
Legumins.

Gluten is the outside layer of cells in all grains. The legumins are peas, beans, and lentils.

There are only two classes of foods—animal and vegetable. Animal foods are the NITROGENOUS, vegetable are the STARCHY.

Always select the foods most perfectly digested. These give the best sleep and nutrition. Correct stools tell the perfect work.

For the *second*—to maintain the body temperature—Nature uses:

From the animal kingdom:

Fats.

From the vegetable kingdom:

Cereals,
Sweet Fruits,
Sugars,
Vegetables.

All the cereal products are composed largely of starch, with a small percentage of fat and an outside coating of gluten. The starch is first converted into sugar in the digestive organs, before being appropriated into heat-forming elements. So the selection of a grain food for a child depends mostly on the amount of starch and fat it contains. As oatmeal contains from three to four times the amount of fat contained in barley, rice, or wheat, and about the same amount, or more, than is in corn, it can be seen that it should receive the preference over these grains, where the digestive organs can consume this excessive amount of fat without causing diarrhea. Cornmeal makes a very suitable food for older children but is not so palatable or suitable for the younger infants, whose milk food may require supplementing with starch from the time they are three or four months old.

The remaining products of the vegetable kingdom are beneficial in heat-producing elements, mostly in proportion to the amount of sugar and starch they contain.

A mixed nitrogenous and starch diet is requisite for perfect development, after the first half year.

Fruits must be considered only as relishes, not as foods. They injure delicate infants.

Cream is the only substitute for human milk. It can be diluted always to suit the infant and bring yellow stools.

Sago, tapioca, and all other products of the palm tree, are valuable forms of starch, light and easily digested. They form a very pleasant change in the infant's dietary, especially where it has suffered from abusive errors in digestion.

From these facts it is plain that the infant's dietary should be selected from both classes of food, with due regard to its age and digestive powers. The only exception to this is where an exclusively nitrogenous diet is demanded by the very young infant, and in cases of sickness where either starch or nitrogen is temporarily excluded.

Foods—Their Uses in Infancy.

Human Milk.—This is the best of all foods till the infant is six to eight months old. Then dilute cow's milk should be added, and with boiled oatmeal or rice will complete a perfect diet. On this addition, weaning should be accomplished before the infant is twelve months old. Human milk can seldom be depended on as the only food after eight or nine months. Good human milk supplies all the elements needed in the nutrition of the infant.

Cream.—Properly diluted, this is the best food to substitute for human milk. On this, many or most children may be raised entirely till six to eight months old, when boiled oatmeal, rice, or barley may be cautiously added as the stools show perfect digestion. Cream must always

Cow's milk carries too much proteid for safe feeding. It is easier and safer to use diluted cream, thus reducing this proteid but retaining the fat.

Always feed cream or milk raw, except in hot weather. If you have your own cow, feed it raw all the time.

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be pasteurized in hot weather, to prevent fermentation, and infection of the infant's digestive organs. Infants should always have three to four months of human milk if possible.

Cow's Milk.—This is nearly always too rich in proteid (cheese) and too poor in sugar to make a good or digestible food for infants under nine months old. When fed, it must be diluted two to four times with boiled water and have sugar added to 7 per cent., and cream enough to make yellow stools, before it is a suitable food. If cow's milk is fed to infants under six months old without proper dilution with boiled water, it irritates the stomach and soon causes an acute gastritis, from which the infant rarely makes a perfect recovery. The stomach remains tender, and if not carefully rested, soon refuses milk in any dilution. Such cases are then forced to wet nurses to save their lives, and some bad cases cannot even digest this human milk. These must be nourished on whey, beef juice, and starch waters. Cow's milk, undiluted, is usually not a safe food till after weaning time. It contains all the elements necessary for the infant's nutrition, but not in the proper proportion. Where infants can digest it they are usually very strong, but so many are gradually poisoned by its excessive proteid (cheese), that it is generally very unsafe without careful dilution.

Both cream and milk should be fed raw when possible and safe, as in cold weather. Cooked milk is not so nour-

Beef extracts must be made fresh every day to avoid poisoning the infant in hot weather.

ishing or easily digested as raw milk. In Nature's way, milk is always fed raw.

Whey.—This is the product left from cow's milk after the curd or cheesy part has been removed by pepsin or sherry wine. It is a weak food, suitable only for temporary use, or in connection with rice, oatmeal, or barley. It is used mostly in feeding those who cannot digest milk. As it does not contain enough of the elements necessary for nutrition, it cannot be considered as a permanent food. In those children over six months old, I have found it a good food with the boiled starches, and the addition of a small amount of cream or beef juice.

Koumiss.—This is made by fermenting cow's milk with yeast. It has a tart taste, which is often very agreeable to the tender stomach. It is seldom suitable for infants except during a feverish or nauseated spell, when sweet milks are not retained on the stomach. Koumiss contains all the elements of nutrition, and may be continued indefinitely if necessary and well digested. As it contains much gas, the tender or nauseated stomach will often accept it kindly when it refuses all other foods.

Beef Juice.—This is a weak, raw proteid food, suitable for one meal daily or for mixing with milk in small proportion, where the infant is not thriving well. As it is a different proteid from that in milk, and for some children more easily digested, it is useful as a lunch or resting meal to relieve the labor on an overworked stomach. In children over nine months old, beef juice can be fed with boiled rice or barley to great advantage. As it contains only one of the elements needed for good nutrition, it must always be considered a temporary food. It

All meat preparations should be fed in the forenoon, so they will be digested before bedtime.

is really a stimulant, preparing the stomach to receive reliable foods, such as the boiled starches—rice, barley, etc. It should be warmed only enough for drinking, as heat over 100° coagulates the albumen and makes difficult digestion.

Beef Broth.—This is nearly the same as beef juice, but is a weaker food, and consequently not so valuable, as here the proteids have been coagulated by the heat. On beef broth alone, any child would starve. It is weaker than beef juice, and should be fed in the same way.

Lamb Chop or Mutton Chop.—These may be fed in the scraped form, broiled lightly and seasoned, to infants whose digestive organs will not receive liquids. These infants have usually been damaged by a milk diet, and suffer from vomiting or diarrhea.

Lamb and mutton chop, cooked rare, may be fed with advantage to children able to run around. It should always be shredded or scraped finely, and fed with potato or bread for the noonday meal. It is good diet for the *active* child able to run, as it contains the fat, proteid, and salts needed for good nutrition.

Beefsteak or Roast Beef.—These are not so easily digested as lamb chop. As they are essentially the same food, they should be used according to the same principles for the active child at midday meal. Beef is the most invigorating food, and is always beneficial when digestible. There is no objection to its careful and limited use, once daily, with the active child. Pale and anæmic children require a solid meat diet. Frequently parents continue the meat juices and broths when they should be feeding the meat itself. The pale color of the

Veal is an unreliable food for infants. To many it acts like a poison, causing nausea, vomiting, and diarrhea.

When feeding egg to an infant, gauge the amount by the size of the child. A twenty-five-pound child cannot digest as much as an adult.

skin, with lack of elasticity and softness of the flesh, will usually indicate this necessity. Nothing contra-indicates the use of the meat so long as the stools show perfect digestion.

Veal.—This is an uncertain food on account of the difficulty in obtaining it old and matured enough for safe digestion and good nutrition. Veal broth is made the same way as beef broth, but has nothing to recommend it save the different flavor from that of other meats. It should always be used with the boiled rice or barley for weaned infants. It may be fed alone to infants over six months old, but great care must be exercised in securing good, mature veal. One meal daily, during the forenoon, is enough. The stools must be watched for good results before it is adopted as a regular item in the infant's diet.

The meat of good veal may be fed at noon to the weaned child, with some starch, as baked potato or bread.

Good veal should supply strength in nutrition, and also be a tissue-builder.

Eggs.—These may be fed to the weaned child of a year old or to the hand-fed, healthy child even sooner. They should always be boiled very lightly, not enough to harden the white or albumen, and a part only be fed at first till the stools show successful digestion.

Egg yelk is principally fat and easily digested. It generates heat, and the albumen of the white part gives strength and forms tissues.

Egg should be fed at the morning or midday meal.

Butter is both nourishment and laxative to the infant. When overfed it causes vomiting, but never does any other harm.

Fish.—When fresh and properly cooked, fish makes a very useful addition to the diet of the weaned child or the hand-fed one of two years old. It is best cooked by boiling or broiling, which removes the excessive fat, and should be fed while the child is exercising, not in the evening. As fish is more easily digested than meat, it can be fed more freely.

Fish supplies heat and strength to the infant.

Butter.—This is a very valuable article in the dietary of the infant at all ages. As it is the essential part of cream, we first find it a component of the infant's diet in the mother's milk. Some parents dread feeding butter as such to the nursing infant. We must remember that it is an essential item of the mother's milk, and is often deficient in quantity there. This deficiency is recognized by the pale yellow color of the stools, and the pale washy, soft color of the infant, and the soft bones. Butter or diluted cream should always be fed under these conditions, and may with safety be fed under all conditions when the infant is not thriving satisfactorily or the bowels are costive. Half a teaspoonful of melted butter may be given two to three times daily to the three months old infant. I have never seen any damage result from feeding it freely, but commonly great benefit. The amount may be increased with age, and continued indefinitely, as long as the child's digestion receives it well and stools are not too frequent.

Cream.—When diluted with three to four parts of sweetened boiled water, cream may be fed in the same way, but is best fed before nursing. Butter and cream secure good growth and heat to the infant.

The breast of chicken and turkey is the most easily digested part. The dark meats are the most fatty and relaxing.

Chicken.—This is a good meat for the weaned infant. The short, tender fibers of the breast are the only parts suitable in the older meats. Any part of the young chicken may be fed when scraped or shredded finely. Any form of cooking which gives perfectly cooked results may be used. It, like all other meats, is suitable for the weaned child, and should be fed without any milk at the midday meal.

Turkey and Duck.—These should be considered in the same light as chicken, and fed accordingly. Game comes under the same head, but judgment must be used in the quality fed. It must not be too old or long killed. It is easily digested and makes a nice change in the dietary once daily.

All forms of poultry and game are valuable tissue-builders, giving strength and vigor to the infant when moderately fed.

Starchy Foods—Cereals.

Oatmeal.—This is the most nourishing and valuable form of starch for young infants on account of the high percentage of fat it carries. In some infants it causes looseness of the bowels, and rice or barley is most suitable to these cases. Oatmeal water, made by three hours' cooking, is a valuable agent in diluting cream. It may always be fed sparingly to the nursing infant after six months of age, when the mother's milk is insufficient in amount or poor in quality. In extreme cases, this starch water, mixed with diluted cream, may be fed as early as three months. It is always desirable to commence feeding this oatmeal water and cream some weeks or months

All cereals are improved for infantile digestion by long cooking. Not less than three hours' boiling will do good work.

Only the foods that are freshly prepared each day are suitable for infants.

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before weaning. This strengthens the infant and helps guard against any approaching damage from the gradually deteriorating qualities of the mother's milk.

Oatmeal is also a powerful tissue-builder and heat producer.

Rice and Barley.—These come next after oatmeal as an infant starch. As they contain little fat, they will suit those cases where oatmeal is relaxing to the bowels. Aside from this effect, there is no difference apparently in the infant's use of these foods. They are always admissible in dilute form after six months, and in urgent cases even after three months old. As infants grow older, the starch may be used more concentrated, as in the jelly form.

All foods made from the whole of the grain have the advantage of the glutinous or nitrogenous outer coats, as well as the starchy inner layers. These foods are valuable tissue-builders, and also supply heat for the body.

Wheat.—In the rolled form, like oats, wheat may be used as an infant food by boiling it the usual three hours and flavoring it well with cream and sugar. This may also, like oats, rice, and barley, be fed lightly to infants at six or even three months old. It is a tissue-builder and heat producer.

As nearly all our bread, biscuits, and cakes are made from wheat flour, it is most commonly consumed in one or other of these forms. If these are boiled first, they can be fed even to the very young in small amounts, with

Potatoes do not agree with all children. If seen in the stools or the infant is cross, they should be stopped.

Small pieces of light, friable cake should be given often after the first six months. Never give large pieces.

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cream and sugar; but in their original forms, they are fed very little before weaning. When fed with butter freely, bread, biscuits, and crackers can be given regularly in small amounts to infants after weaning, and to many as early as six months. These forms are not as safe as the boiled form with dilute cream, nor are they as easily digested or nourishing. In the baked forms, they are condensed food and not so digestible.

Potatoes.—These contain from fifteen to twenty-five per cent. starch. The balance is mostly water and cellulose starch envelopes. Baked potatoes are considered more digestible than boiled ones; but ripe, dry potatoes are generally a safe starch diet, when well mashed and dressed with butter, cream, or milk. They may be fed in the same way as meats, once daily, or more frequently if desired, as the infant approaches the weaning period. They substitute all cereals at any meal, but are not so valuable, as they contain less than half the amount of starch and no gluten.

Potatoes should be classed mainly as heat producers.

Cakes.—All light, friable cakes made from flour, sugar, eggs, and milk, can be given in moderation to children having teeth, so long as the total amount of food per day is not materially increased thereby. In all these additions to the dietary, the digestive power of the infant, as evidenced in the stools, must be respected. Food passing through the infant unchanged is not beneficial, but, on the contrary, is a source of danger. Rank odors and mixed colors in the stools should be

Fruits and vegetables should not be fed during the first year, and very little during the second.

considered as indications of an unsuitable diet, either in quality or quantity, possibly in both, and requires prompt correction.

Light cakes, well digested, are tissue-builders and heat producers also.

Carrots, Turnips, Cabbage, Onions, Parsnips, and Beets.—These are all foods of the coarser variety, and contain little starch. They are unsuited to infants and should always be avoided.

It would be impossible to classify these vegetables under any of the nutritive heads. They contain so little starch they cannot be considered as heat producers, and so little nitrogen they cannot be tissue-builders.

Fruits.—These can seldom be fed with safety to infants. Only the sweetest kinds are admissible in small amounts as a relish, and should never be fed to the infant during the first year. They may be introduced occasionally, when perfectly ripe and fresh, in small quantities during the second year, to vigorous, healthy children. Their effects must be carefully watched, as they are not in any sense essential to a properly fed infant. They are best reserved for those showing a scorbutic tendency from using a continued cooked dietary. Such infants will be found among those fed on condensed and sterilized milk and on all patent foods. They are like sailors robbed of raw foods, and require the fruit acids to avoid the dreaded effects of scurvy. A continuously cooked dietary is to be avoided, if possible.

Fruits are valuable, solely on account of the sugar and acids they carry, and the stimulus they give the appetite for other foods. They should be fed before the afternoon

Tropical starches are not adapted for feeding in the temperate zone, except in special cases.

Before selecting a food for the infant, see that it has the elements necessary for proper growth and development.

meals, to secure perfect digestion, before the evening or sleeping hours.

Fruits must be classed as heat producers in proportion to the sugar they carry; but the sourer ones are overbalanced in this respect by the cooling acids they contain. Children and adults with tender digestive organs should avoid these entirely.

Ripe peaches, grapes, and plums are the most digestible and suitable of the fruits for infants.

Tapioca, Arrowroot, and Sago.—These are the product of the palm tree and many tropical roots. They are other forms of starch, and are a light, easily digested food. Perhaps they are among the most easily digested of the starches, but as they contain no fat, they are not very nourishing. They are suited to tender conditions of the digestive organs, and can be used only a short time with benefit to the infant.

They are weak heat producers, well adapted to the tropics, but insipid in taste and relished only a short time. They always require sugar to make them palatable.

Composition of Foods.

In the following columns is shown the analysis of different foods, as made by Professor Leeds. As human milk is the standard with which to compare any infant food, it is placed at the top for ready comparison. It will be observed that cow's milk is the only one which contains all the elements of human milk, but in different proportion:

All foods are made from milk and cereals. Neither of these is improved by age. All albumenized foods are damaged by age.

	1 Water.	2 Fat.	3 Proteids.	4 Soluble Carbohydrates or Sugar.	5 Starch.	6 Gum and Cellulose.	7 Ash.
Human Milk	87.66	3.71	1 44	6.94	.....	.....	0.25
Cow's Milk	87.03	3 to 6	4.00	4.00	.....	.....	0.68
Condensed Milk, Diluted for feeding	91.30	1.51	2.01	4 88	.....	....	0.32
Imperial Granum	5.49	1.01	10.51	3.56	78.03	0.50	1.16
Ridge's Food	9.23	0.63	9.24	5.19	77.96	.....	0.60
Mellin's Food	12.37	0.18	10.07	68.18	.....	5.45	3.75
Horlick's Food	9.70	0.34	10.43	76.83	.....	0.50	2.20
Savory & Moore's	8.34	0.40	9.63	44.83	36.36	0.44	0.89
Malted Milk	2.18	5.30	15.83	66.99	5.57	.....	3.13
Nestle's Food	5.00	4.25	11.00	40.91	36.86	0.28	1 70
Carnrick's Soluble Food	3.42	7.54	10.25	64 53	.....	.....	4.42

By diluting any of the above to 88 per cent. of water, from condensed milk downward, so that they are of the necessary diluteness of breast milk, it will at once be seen the unreliability of all substitute foods for breast milk. It will also be apparent that the cream has been abstracted or evaporated from the milk used in their manufacture, and thus the requisite amount of fat for successful baby growth lost to these foods.

Next note the immense variation in proteids. The most striking difference occurs in the sugar, which runs from 3.56 in Imperial Granum to 76.83 in Horlick's Food.

Columns 5 and 6 show the presence in most patent foods of starch, gum, and cellulose, the two latter being waste from the former.

Imperial Granum, Ridge's Food, Hubbell's Wheat, and Robinson's Patent Barley are mostly starch made from wheat or barley. They are nearly alike, containing 75 to 80 per cent. starch and 1 to 6 per cent. of sugar, balance waste.

The lactated foods are milk foods, and are represented by Nestle's, Anglo-Swiss, Franco-Swiss, the American-Swiss, and Gerber's Foods. These are all made from evaporated milk and flour made into cakes and ground up. Mellin's Food, Liebig's, Horlick's, Hawley's and Malted Milk are all malted foods, having barley malt in addition to flour, starch and evaporated milk, but are largely composed of sugar, some having from 50 to 80 per cent. of it, which is mostly converted starch.

Carnrick's Soluble Food, Lacto Preparata, and Lactated Food are all preparations of starch and sugar, or milk sugar diluted, some having cocoa butter added to give them some kind of a fat, but not the right one.

Let us pause for a moment after considering the above component parts of different patent foods, and look at what Nature demands for the perfect growth and development of the young infant during the first year:

4 per cent. cream for warmth and growth.

7 per cent. milk sugar for heat.

$1\frac{1}{2}$ per cent. proteids for strength and tissue formation.

0.25 per cent. mineral salts (ash) for blood alkalinity and bone stiffening.

Toward the end of the first year she accepts of starch also, as in oatmeal, barley meal, rice, bread, or potato. These are all she demands for the perfect child.

These facts will enable any mother or nurse to select from the above list the most suitable diet for her healthy infant. In doing so, she will find the cheapest diet is the

All proprietary foods are short in the necessary percentage of fat.

Diluted cream is the best kind of food for young infants.

one nearest to Nature's demands, and the one which will make the perfectly healthy, vigorous, and symmetrical child.

Proprietary Foods.

These are commonly called patent foods, and each one generally claims more beneficial qualities than the other. Their loud claims to superexcellence and their unknown components add to their greatness in the eyes of those who always grasp at something unknown or the impossible. In fact, some people, by their acts, often say they like to be humbugged. What can manufacturers procure for making their foods that cannot be obtained in any home? They use nothing but milk and flour from wheat, barley, corn, or other grains. Some add a little malt, but unless this is done very carefully and at a low temperature, it does not add to the value, as malt is always destroyed by cooking or boiling.

Where milk is used in these foods, it is always cooked or evaporated. Every cook knows that butter or cream soon evaporates or burns away when highly heated. Such would be the case in manufacturing these foods also if the cream were left in. Generally it looks as if it was removed before, and the food made with the residue or skimmed milk. Certainly analysis shows all baby foods short in the cream or fat. This is a great loss to the child.

The flour is baked into cakes and these are pulverized. The baking here results, as it always does, if properly done, in making the flour more digestible. Whether these foods carry the milk with them or not, they only contain well cooked flour in the pulverized form instead

Diluted cream and oatmeal boiled three hours cannot be equaled for infant feeding.

of the soft form left in cooking rice or oatmeal, or the solid form of bread, present always on our breakfast table. Why, then, feed to the delicate infant an unknown something, foreign made, instead of a well-known certainty, home made? Truly, our inherited tendency to believe in the uncertain unknown displays itself even in feeding our little ones. Certainly we are not yet well enough educated to apply our judgment to these articles, or we would not blindly continue their use, and persevere in this damaging, stunting, and poisonous course which only too regularly makes a harvest for the undertaker every warm season. Where a fatal result does not follow their use, large abdomens, poor complexions, and crooked bones make worry for the parents and toil for the physicians only too often.

The careful feeding of the young infant so as to make a happy, cheerful, steadily growing child, is the most important feature in any household. For healthy children it will be seen that the use of proprietary foods is entirely unnecessary. Manufacturers of these foods must always use the same elements for their products. We should not allow our experience and knowledge of these articles to be clouded by newspaper advertisements claiming superior and impossible advantages. We know that milk and meat never improve with age, and that they must be subjected to cooking and preservative influences and mixtures to prevent them from poisonous decomposition. It is with great effort and care they can be retained in a passably acceptable form. Age, therefore, under the best handling, always casts a shadow on their quality.

Starch, by any treatment possible to science, can only

Proprietary foods cannot give the development and strength that pure milk and well made home foods always give.

Too much sugar makes fat but weak babies, liable to have rickety bones.

be advanced a short step on the road to digestion. Careful treatment by heat and malt starts the change from starch to sugar. In this change starch passes through the stages of dextrin, dextrose and maltose, all having a sweet taste when properly and carefully completed. Too frequently it remains as cooked starch only. If improperly done, acetous fermentation is established, as is done in sour bread.

Proprietary Foods and Sugar.

Usually these foods are mawkishly sweet, either from this partially changed starch or the addition of cane sugar to prevent them from souring. In some delicate children, whose digestive organs have been damaged by abusive and careless feeding, a sweet diet is the only one that can be given. In cases of this kind, some of these foods may be allowed till, by careful medicinal treatment, the digestive organs recover their tone and are able to accept of a reliable diet, in which there is safety for the future development of the infant. The marked absence of, or variation in, essentials running through all proprietary foods, must always warn the thoughtful parent that as perfect and vigorous a child cannot be secured by a diet lacking in these elements, which are absolutely requisite for the growth of all the different tissues in the body.

Nature feeds sugar, as such, to the young infant, but never over the fixed proportion of 7 per cent.; and is careful to decrease this as the child grows older. Sugar

All foods, when diluted properly like human milk, must be failures, as they do not contain the requisite elements for nutrition.

in excess makes fat babies, but weak ones, liable to sickness.

Below we show a table of artificial foods diluted like human milk. A glance will show their relative proportions and suitability for successful infant feeding.

	Breast Milk.	Cow's Milk.	Condensed Milk, Diluted 6 Times.	Mellin's Food.	Malted Milk.	Nestle's Food.	Ridge's Food.	Imperial Granum.	Carnrick's Soluble Food.
Fats	4.00	3.50	0.99	0.04	0.39	0.76	0.16	0.14	1.12
Proteids	1.50	4.00	1.20	1.50	2.28	1.54	1.67	1.98	1.35
Sugars	7.00	4.30	7.23	11.56	10.18	6.38	0.41	0.25	4.06
Starch	.....	.....	.....	.....	.....	4.19	10.91	10.65	5.61
Inorganic Salts	0.20	0.70	0.17	0.45	0.50	0.24	0.07	0.06	0.56
Water	87.30	87.50	90.40	86.45	86.65	86.89	86.78	86.92	87.30

1. Note carefully the great deficiency in fat of all the foods after cow's milk.

2. Note also the irregularity in the amount of sugar, some having too much, and others not enough.

3. The fourth line shows the presence of starch in some of them. As this is an element foreign to breast milk, it is, of course, not applicable to infants during the first few months, and not to many of them till eight or nine months old.

Dietary of the Weaned Infant.

Nitrogenous and starchy foods make the whole dietary of mankind. The proportions of these two consumed by the adult are about 40 per cent. nitrogenous and 60 per

The young infant's diet is all nitrogenous; the parent's diet is 40 per cent. nitrogenous and 60 per cent. starchy.

cent. starchy. The infant gradually changes from the wholly nitrogenous diet of the first few months to this 40 and 60 per cent. ratio of the adult, and many active ones accomplish this during the first two years.

Nitrogenous Foods.

Now, if only nitrogenous food is requisite as one-half of the dietary, we are limited to milk, eggs, fish, and meat. Certainly, if we give one nitrogenous food freely, we need not give another at that meal to any child. So it results that if we feed milk, we do not require eggs; if we feed eggs, we do not require meat or fish; and so on through the nitrogenous list. This rule may be modified when only a small amount of any one is given; then another may be added in moderate amount, to make up the daily average.

The only rule governing the selection of the best nitrogenous food is the power of digestion in the little one. The watchful eye of the mother soon recognizes the perfect digestion of any new food allowed to the child, and she can thus feel secure in repeating it so long as this is a success. The condition of the stool is still the only key requisite to solve this subject. Perfect digestion allows the new food to be repeated, but bad, rank odor, green, pasty color, or unusual liquidity, shows imperfect digestion and the unsuitability of the last addition to the diet.

Suitability of Nitrogenous Foods.

These are all increased in difficulty of digestion by overcooking, and are also proportionately decreased in nourishing properties by the same treatment. They in-

Tender meats are the most easily digested. Curing meats increases the difficulty in digesting them.

Young meats are the most tender; older meats are the most nourishing.

crease in digestive difficulty in the following order: Milk, eggs, fish, and meat.

MEAT.—Of the meats, beef, mutton, and lamb are the preferable ones for children. They should be fed in the noonday meal, so the child can have plenty of exercise before the sleeping hours. Chicken, duck, and turkey are classed with the meats, and make agreeable changes in the child's dietary. They should not be fed with dressings or rich gravy. The breasts or white meat are always the most suitable parts for tender stomachs. All meats should be shredded or cut up very finely, and mixed with mashed potato or bread dressed with milk, meat juice, or light gravy.

CURED MEATS.—Ham, lean bacon, corned beef, dried beef, and all canned meats and fish are unsuited to infant feeding. They cannot digest nitrogen in this form, and the use of it generally leads to indigestion and diarrhea.

Young Meat vs. Old Meat.

Parents should remember that tough meats are difficult to digest. This gives the preference to the meat of younger animals and birds, and the choicest of the older meats. But these young meats are not so nourishing as meat from older animals and fowls, and broths made from the latter are much more valuable than those made from the meat of young stock.

Fat of meats should be considered in the same light as we view cream, butter, and cod-liver oil. They are needed in a certain percentage to secure heat, growth,

Imperfectly digested meat causes foul, slimy, green stools. These are sometimes watery also.

and soft stools. It is in this way that fat bacon is valuable to many children.

Dread of a Meat Diet.

Parents have generally some dread of feeding meat to young children. This is based usually on parental teaching or inherited ideas. There may be truth or error in this, according to the mode of feeding this diet. Too often nausea and vomiting, or colic and diarrhea, follow the too free indulgence in it. The same result may follow overuse of any food. The judicious use of meats, according to *perfect digestion*, cannot do any harm; but, on the contrary, must do great good in supplying the aliment from which all the tissues of the body are developed, and strength and vigor are secured. Any parent who is accustomed to a regular meat diet daily and doubts the suitability of it for the infant after weaning, should make a test of the absence of meat in his own diet. After about a week he will realize the very decided loss in his strength, energy, and ambition, and will demand this vigor-giving food again. The writer was skeptical on this point, and made such a test in his own diet. The depressing and weakening effect was so marked that now he never hesitates in allowing this food to the infant one or two years old when the stools prove it is well digested. Of course, the presence of teeth to grind such food is a requisite for safety in feeding it, coupled with thorough shredding, or mincing it, before feeding.

Meat should not be fed more than once daily, and no milk should be given at that meal. As the child grows

Starchy foods cannot be boiled too much for easy digestion.

older, the amount may be increased. Great care and watchfulness must be exercised not to feed enough to cause green, slimy stools or a heavy, sleepy condition.

Starchy Foods.

Starch forms the bulk of all cereals, and shows no difference except in the shape and size of the particles in the different grains. It is tied up in little envelopes of cellulose, there being hundreds of these closely packed together in each grain. These are only visible under the microscope, being too small to be seen with the naked eye (Figure 20). These little cellulose envelopes must be broken, so that the digestive fluid can act on the starch. They are not soluble in the stomach and form part of the waste that is carried off by the bowels. To break these starch envelopes requires long continued boiling or baking, and this explains why rice, oatmeal, or barley are so easily digested when long and thoroughly cooked. At the very least, three hours' cooking in the double boiler are requisite to break these envelopes. Where starch is ground up first and then boiled in a single vessel with constant stirring to prevent burning, it reaches a much higher temperature, and can be cooked thoroughly in an hour. The same fact applies to the high temperature of the oven in baking starchy foods, where seldom more than half an hour is needed for any article except the largest, such as bread.

Where starchy food is not thoroughly cooked, it produces indigestion in the infant, and very soon diarrhea also from fermentation, as the digestive fluid cannot penetrate the cellulose envelopes. This is very commonly

Imperfectly cooked cereals cause indigestion, gas, diarrhea and restlessness, with vomiting.

illustrated where mothers are directed to feed some rice, oatmeal, or barley to the weaning infant in connection with the regular milk diet; but are not instructed to give the three hours' cooking requisite for easy digestion. Generally, vomiting, crossness, and loose bowels follow this short cooking, which at once disappear when better and longer boiling of the same starch is secured.

From this it is evident that the starch diet of an infant is very simple if the principles of cooking and diluting are observed.

Selecting the Most Suitable Starch Diet.

Starch forms the bulk of all cereals, a small part of most vegetables, and of many fruits. The following table shows the proportion of starch in the cereals and some vegetables. In one hundred pounds of the grain there are in

	Of Starch.
Rice	76 to 87 pounds.
Sago, tapioca, arrowroot, corn flour, maizena	83 pounds.
Pearl barley	38 to 76 pounds.
Fine wheat flour	74 pounds.
Rye	44 to 71 pounds.
Wheat	53 to 69 pounds.
Maize (Indian corn)	66 to 67 pounds.
Buckwheat, without husks	64 pounds.
Scotch oatmeal	63 pounds.
Beans	36 to 52 pounds.
Peas	39 to 51 pounds.
Wheaten bread	48 pounds.

Fruits are not a good diet for infants. They should never be given during the first year.

Potatoes	10 to 24 pounds.
Parsnips	3 pounds.
Vegetable marrow	½ pound.

From the above list, it is easy to have a large variety of foods made from different grains, all carrying an abundance of starch. When we look at the last three items in this list, we are struck with the rapid depreciation in starch, and corresponding food value of the vegetable part of the list. The same small proportion of starch pervades all vegetables, the great bulk of each being cellulose and water. The greater proportion of starch in potato explains why it is such a standard and valuable food.

Fruits.

These are valuable as foods in proportion to their sweetness. They are beneficial to children in like proportion. This is explained by the amount of sugar they carry. Where the sugar is plentiful, the acids are correspondingly less. Strong acids and density are usually the injurious elements in fruits.

The fruits most suitable and easy of digestion are grapes, oranges, cooked apples, figs, peaches, strawberries, and raspberries. Among these, of course, the ripest and sweetest are the most desirable and valuable.

Melons, prunes, raw apples, pears, apricots, bananas, and fresh currants are less digestible, and consequently more suited to older children and adults.

Aside from the nourishing power of the sugar in fruits, they are valuable for the mild acids they contain and the pleasant, stimulating flavors they carry into the stomach. The acids are valuable in avoiding the

Fruits are nutritious through the sugar they contain.

scorbutic tendency in hand-fed children, and, with the flavors, stimulate the secretions of the stomach, causing a stronger and better digestion when not used too freely.

Pineapples and bananas are valuable when perfectly ripe and of a rich flavor. The inferior grades should be discarded, as they are not perfectly ripened and are difficult to digest.

All starches are converted into sugar in the digestive organs before being assimilated. As sugar they can be used in the body or stored up for future use. Suitable fruits being mostly sugar when ripe and ready for use, do not require much labor in digestion. This explains the great capacity vigorous children show for fruit diet, and with the stimulating influence of their flavors, why fruits do not destroy the appetite for regular meals, when eaten moderately.

In our efforts to simplify the diet of the weaned infant, we have only spoken of nitrogenous and starch diets, as these are the principal elements in the animal and vegetable classes. Coupled with these are other elements in each class of great value, as the extractives and salts in meats, and the nitrogen salts and fat in cereals. As most of these minor elements are treated of separately, the writer thinks it best to avoid them here.

Suitable Foods for the Nursing Mother.

Mixed dietary of

Meat, milk, eggs, fish (nitrogenous foods), and potatoes, bread, oatmeal, rice (starchy foods), make the reliable and successful milk.

Too much nitrogenous food makes this milk colicky.

Overfeeding of meat, milk, or eggs by the mother makes a cross, colicky milk for the infant.

Any foods causing indigestion in the mother spoil her milk for the infant.

Vegetable food alone makes easily digested but a weak milk.

Starchy or grain foods make a good milk.

Raw fruits and sour fruits make a colicky milk.

Cabbage makes a poor, colicky milk.

Pickles make a weak, cross milk.

Tomatoes are tart and make a cross milk.

Drinking freely of milk sometimes causes colic in the child through too much proteid.

Iced drinks of any kind will disturb the milk secretion and distress the infant.

Too much food, of any kind, causes indigestion, reduces the milk secretion, and also spoils its quality.

The nursing mother should carefully adjust the amount of meat daily to her own and the child's necessities. A fair amount at two meals daily is always enough. Some mothers do not take this, and thus spoil this secretion.

Overmuch meat is known by the colic, green stools, and restlessness of the infant.

A too limited meat dietary is shown by the paleness of the infant and its failing to make the weekly increase in weight.

Each mother must study her own dietary by the results shown in her infant.

Foods for Delicate, Weak Children.

There are a number of infants every summer, born in that year, who do not thrive, and who persistently pass food in their stools, and who always have loose, watery, foul

Infants starve from overfeeding and thrive on a suitable reduced diet.

stools These stools are and may be any color, consistence, or character. Green color, watery, or slimy consistence, with curds or lumps of undigested food, and very foul odor are the prevailing characteristics. The stools vary in number from two or three in the day to as many in the hour. They vary also in size, being smaller generally as they increase in number, and often only a green splash on the diaper.

These infants do not grow. They are cross, whining, and sleepless, requiring constant attention. At six or eight months they weigh little more than at one month. They are pale, poor, wrinkled, and weak, looking like little old men.

The history in these cases is generally that of a child fed with a bottle, given all kinds of foods in succession in the vain effort to find one suitable. Or the infant may have these stools and the mother still persist in nursing it, never recognizing the fact that her milk is unhealthy and the cause of all the infant's trouble; or, perhaps, the mother feeds and nurses also.

A careful analysis of the case shows that

The infant receives all it will swallow;
At any time it cries,
Or any time it will take its food
Of uncertain strength;
With changes of the food
At any and all times,
And more than one change
Inside of two days.
All being done
Regardless of that proof

Yellow stools for health and growth; green for sickness and emaciation.

Which must always guide and direct
All changes and additions in the food,
And is seen clearly every day
In the YELLOW, INODOROUS CHARACTER of HEALTHY STOOLS.

Omission to secure and read this stool guide clearly, always guarantees a failure in the nutrition and growth of the infant.

The infant, in these cases, is suffering from inflammation of the stomach and bowels, produced by this persistent abuse with *unsuitable* amounts of *unsuitable* food at *unsuitable* times.

Experience shows that these cases must be taken down at once to the small amounts of suitable parts in the food on which they have existed, and the crude, coarse, indigestible parts, which have produced the damage, at once eliminated. The infant nursing unhealthy milk must be weaned, or a wet nurse provided. Proper intervals must be allowed between feedings. These are usually about two hours, and digestive assistants (Remedy No. 43) must be used freely with each feeding, to guarantee successful digestion. Without free use of these digestive assistants, the food ferments in these infants' stomachs, and thus perpetuates the irritation and inflammation.

The digestive assistants must be used in sufficient quantity, or they are useless. They act on the food by digesting it till the stomach is able to do so itself. In this way, the infant is properly nourished. As salt is necessary in curing meat, and as sugar is needed in curing fruit, so are digestive assistants needed freely in curing food in these delicate cases.

The weak stomach requires assistance to do its work, until it is strong enough to do it alone.

The following tables are constructed to show the dietary most successful in feeding and nourishing these delicate infants. Parents must always remember that a stomach once badly irritated by cow's milk or unhealthy human milk, is seldom able to digest the proteid, or cheesy part of cow's milk again. Even the small amount left in the cream seems to tax the stomach to its utmost, when diluted cream is fed as a diet. The weight of the infant, not the age, must determine the amount of the food, and the tender digestive organs must control the quality of the food. In no sense can it be fed as a healthy, normal infant, or even as one newly born.

Here, as in all other infants, the healthy, well digested, yellow, inodorous stool must always be the guide in feeding. The stool of the hand-fed infant is not soft and pasty, like that of the nursing infant.

FOOD.		ELEMENTS IN THE FOOD.	
Cream	1 ounce.	Fat	0.50
Rice water	10 ounces.	Starch	3.00
Lime water	1 ounce.	Proteid	0.18
Boiled water	8 ounces.	Lime	5.00
	20 ounces.	Sugar	5.00
Milk sugar, 2 measures. (Figure 19.)			

Cream	2 ounces.	Fat	1.00
Rice water	10 ounces.	Starch	3.00
Lime water	1 ounce.	Proteid	0.37
Boiled water	7 ounces.	Lime	5.00
	20 ounces.	Sugar	5.00
Milk sugar, 2 measures.			

Weight, not age, is the true guide in selecting the amount and quality of food for a delicate infant.

Cream -	3 ounces.	Fat - - -	1.50
Rice water -	10 ounces.	Starch - -	3.00
Lime water -	1 ounce.	Proteid - -	0.56
Boiled water -	6 ounces.	Lime - - -	5.00
	20 ounces.	Sugar - -	5.50
Milk sugar, $2\frac{1}{4}$ measures.			

Cream -	4 ounces.	Fat - - -	2.00
Rice water -	15 ounces.	Starch - - -	4.50
Lime water	1 ounce.	Proteid - -	0.75
	20 ounces.	Lime - - -	5.00
Milk sugar, $2\frac{1}{2}$ measures.		Sugar - -	6.00

Cream -	5 ounces.	Fat - - -	2.50
Rice water -	14 ounces.	Starch - - -	4.00
Lime water	1 ounce.	Proteid - -	0.88
	20 ounces.	Lime - - -	5.00
Milk sugar, $2\frac{3}{4}$ measures.		Sugar - -	7.00

Occasionally, a child fails to digest breast milk, or cow's milk, or cream in any form. Whey should then be used instead of cream in these formulæ. Beef juice may be fed alone, or combined with the starch water of rice or oatmeal, as follows:

Beef juice (ex-		Fat - - -	0.00
pressed) -	3 ounces.	Proteid - -	1.00
Lime water	$\frac{1}{2}$ ounce.	Lime - -	2.50
Boiled water	$6\frac{1}{2}$ ounces.		
	10 ounces.		
Season with salt.			

Beef tea or beef juice (exp'd)	3 ounces.	Fat	0.00
Rice water	3 ounces.	Starch	2.00
Lime water	½ ounce.	Proteid	1.00
Boiled water	3½ ounces.	Lime	2.50
	10 ounces.		
Season with salt.			

Beef tea or beef juice (exp'd)	3 ounces.	Fat from oatmeal	1.00
Oatmeal water	3 ounces.	Starch	2.00
Lime water	½ ounce.	Proteid	1.00
Boiled water	3½ ounces.	Lime	2.50
	10 ounces.		
Season with salt.			

As the stools become formed and of a proper color and consistence, the proportion of the starch water may be increased till it is fed pure with the beef juice and lime water. When that point is reached, the starch jelly may be used instead of starch water. The addition of this starch will often guarantee success in feeding the youngest of these damaged infants. The addition of half a teaspoonful of good malt extract to the food just prior to feeding, and always *after* the food has been properly heated, will aid materially in the successful digestion of these starch waters.

CHAPTER VII.

FEEDING.

What Must I Feed My Baby?

Each infant is a separate study. The food must be adjusted to its digestive power, so as to produce yellow stools and consequent healthy development.

Nature says:

Be sure you feed sugar—7 per cent.
Be sure you feed fat—4 per cent.
Be sure you feed proteid—.50 to 1.50 per cent.
Be sure you dilute these in about 88 per cent. of boiled water.

When old enough—six to nine months—be sure you commence feeding well-boiled starch (oatmeal or rice) in small quantities, such as will not disturb the stomach or change the odor or consistence of the stools. This food will give you a healthy, symmetrical, well-developed baby. Any food which has not all these items in about these percentages will cause the infant to be *rickety*, weak, and delicate.

All these items are contained only in healthy cow's milk, and this can be diluted and altered to make the above correct percentages, as they are in human milk.

Avoid feeding at night, if possible, after the first few months. The infant's stomach works better when rested regularly.

By watching the stools carefully, you will soon know the strength of the infant's digestive glands, and can decrease or increase the proteid and fat as the stools, sleep, and happiness of the infant demand it.

Rules for Artificial Feeding.

A child should not be over twenty minutes in feeding, and some should not be five. The nipple should be removed as soon as the infant hesitates or falls asleep. The nurse should hold the child during nursing, and also hold the bottle so that milk and not air comes promptly. As nearly as possible the meals should be given regularly, but the child should not be waked in order to feed. Some latitude in time must be allowed, as the stomach varies in the rapidity of its action. The following table is one among many showing the ages with number of feedings and amounts that are usually successful:

Age.	Number of Feedings in 24 Hours.	Interval Between Feedings. Hours.	Night Feedings (10 P. M. to 7 A. M.).	Quantity for Each Feeding. Ounces.	Quantity for 24 Hours. Ounces.
Third to seventh day.....	10	2	2	1 to 1½	10 to 15
Second to third week	10	2	2	1½ to 3	15 to 30
Fourth to sixth week.....	9	2	1	2½ to 3½	22 to 32
Sixth week to third month .	8	2½	1	3 to 4½	24 to 36
Third to sixth month.....	7	3	1	4 to 5½	28 to 38
Sixth to ninth month.....	6	3	0	5½ to 7	33 to 42
Ninth to twelfth month....	5	3½	0	7½ to 9	37 to 45

Cow's milk is the only food that contains the same elements as human milk. These elements cannot be made in a laboratory.

Many children do well and feed more frequently at night than here shown, but it is best not to feed at night, except when compelled to do so.

The variation in the amounts given at each feeding, as well as the total amount for the day, is partly explained by the sizes or weights of the children, and partly by their appropriating powers. This is the individuality belonging to the human family, and the true amount is found by each mother looking carefully to feeding all the child will perfectly digest, as is proven by the yellow, inodorous, mustard paste stools. These always demonstrate the thrifty point, and a violation of any one of these stool characteristics is sure to lead to imperfect development, heralded by the disturbed sleep, crossness, and colicky cries of the little one.

Foul odors, green, watery, or slimy stools always accompany this disturbed condition.

Size of the Stomach.

As the size of any vessel must control the amount put into it, so the size of a child's stomach should regulate the amount of food taken at any one time. Frequently the writer is asked about the amount that should be fed to an infant. A proper knowledge of the healthy, not the dilated, size of any child's stomach will answer this question. Overfed children always have dilated stomachs (Figure 22), weak from this stretching or overfeeding process, and should be under, rather than over, fed till this undue or unhealthy dilatation is reduced, and the natural strength of the stomach walls recovered.

The sizes of healthy infantile stomachs vary greatly. Some require more food than others.

Figure 22. A dilated stomach, caused by overfeeding, at two months.

The examination of many cases after death shows the average size at different ages as follows:

Birth	- -	1.20 ounces, or 9 teaspoonfuls.
Two weeks	- -	1.50 ounces, or 12 teaspoonfuls.

Four weeks -	2.25 ounces, or 18 teaspoonfuls.
Six weeks - -	2.37 ounces, or 19 teaspoonfuls.
Eight weeks -	3.27 ounces, or 27 teaspoonfuls.
Ten weeks - -	4.15 ounces, or 33 teaspoonfuls.
Twelve weeks -	4.50 ounces, or 9 tablespoonfuls.
Fourteen to eighteen weeks - -	5.00 ounces, or 10 tablespoonfuls.
Five to six months -	5.75 ounces, or 11½ tablespoonfuls.
Seven to eight months	6.90 ounces, or 14 tablespoonfuls.
Ten to eleven months	8.15 ounces, or 16 tablespoonfuls.
Twelve to fourteen months - -	8.90 ounces, or 18 tablespoonfuls.

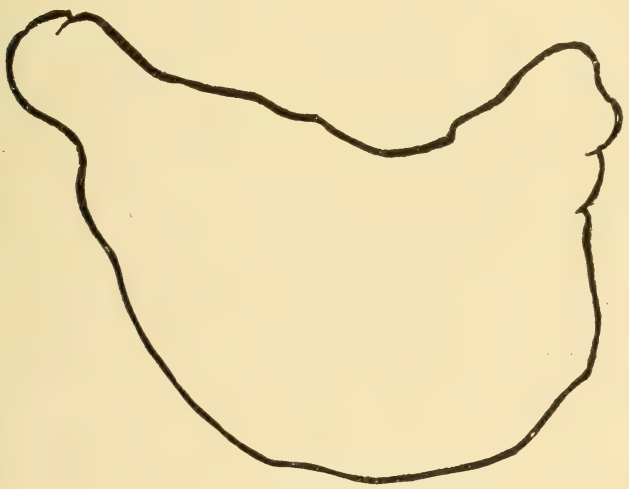

Figure 23. A healthy stomach at six weeks.

As these measurements apply to healthy children of average size, they cannot always be applicable to sick children who have not thrived.

More correct, generally, is it with these sick children to be governed by the size of the child, or rather the

In delicate infants, the amount of food is governed more by the weight than by the age. To feed for healthy stools is the only correct guide.

"You are stretching my half-pint stomach into a quart measure," retorts the crying child to the overfeeding mother.

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weight; large children requiring more, and small children less food. When the proper amount is selected, the child sleeps well and is happy during waking hours, if the food is of the proper quality.

The following table of weights should be the best guide when used in connection with the age table:

Birth - -	7½ pounds.	Seven months	16½ pounds.
One month	8¼ pounds.	Eight months	17 pounds.
Two months	10½ pounds.	Nine months	17½ pounds.
Three months	12½ pounds.	Ten months -	18 pounds.
Four months	14 pounds.	Eleven months	19 pounds.
Five months	15 pounds.	Twelve months	20 pounds.
Six months	15¾ pounds.		

From this a mother can see that a sickly child six months old, which weighed only twelve pounds, should receive at each feeding not more than four and one-half ounces, which is the amount a healthy child of three months would require.

It is also apparent that delicate children do not thrive in direct proportion to the amount of food they swallow, but most certainly in proportion to the amount they digest properly, as shown by the healthy yellow stools. This latter feature must always be observed for success.

Mothers must not forget that overfeeding may and does dilate the stomach to three and four times its ordinary healthy capacity; that in proportion as it is dilated, so is its digestive power weakened, and the health of the child impaired.

Infants nursing rapidly always take more food than they require. This makes them cross and restless.

Rapid Feeding.

The food should not come too rapidly to the infant. Such an infant is most likely to be overfed. As there requires a sufficient time to elapse before the child feels satisfied, he who drinks slowly realizes this sensation before receiving too much. This is an argument against using nipples too long, or those with large holes in them. The flow of milk should be just as slow as will satisfy the child, so that he will continue drawing. Parents who are accustomed to having the infant empty the nursing bottle in two to three minutes, will be surprised to realize that the slow nipple, requiring twenty minutes, gives perfect satisfaction and comfort and a less amount of food to the infant.

The slow nipple compels the infant to exercise his jaws for a long time, and this continued exercise demands a continued secretion of saliva, so that the twenty-minute feeding will probably secure four times more of this digestive fluid than the five-minute feeding. When we remember that this four times more saliva is mixed with a lesser amount of food, we can see why we must get more comfortable results and better growth by this slow method of feeding.

Hand Feeding.

While children hand fed are commonly large and heavy, they have not the vim and energy of the breast-fed child, and the doubt is if they ever catch up in the race of life with their more favored brothers. Certain it is that they are far behind where they themselves would have been with a full supply of breast milk, during their first year's exist-

The perfect development of the infant is the only true guide in feeding.

ence. Given a case necessitating hand feeding, it behooves us to undertake it intelligently and supply, as nearly as possible, what Nature has indicated as the proper food for that particular age and weight. To do this, in many cases, is accompanied by many difficulties, and in some cases almost impossibilities, particularly where the digestion has been damaged by unsuitable food.

To overcome these difficulties, and produce healthy, vigorous children, mentally and physically, should always be our object.

It is very much to be regretted that so many parents are so favorably impressed with the success of hand feeding. So common is this impression that some mothers will voluntarily relinquish their own supply of milk to raise the baby on a bottle. Little do they realize that they are robbing the child of that which can never be reimbursed to the little one by any other power on earth. Words fail to properly express the risks to its life which are thus incurred; neither can words describe fully the damage to the child's physical development often incurred, even if it should live.

No one can understand these results like the physician, who, through long years, is compelled to witness these sad mistakes, and is continually called to battle with them professionally, either to save their lives in subsequent sickness, or to repair the damages thus inflicted on these little ones. So great and decided are these bad results generally, that it is with an aching heart and a feeling of apprehension that he is compelled, again and again, to witness, among his little patients, the abandonment of the true "fountain of life" and the adoption of the nursing

The mother should never raise an infant on the bottle when she can nurse it successfully.

Successful feeding means more than the size of the infant. Heavy babies often have crooked legs.

bottle and its too often consequent casualties, even in the safest of hands.

If the parents could be made to realize that the ill-shaped heads, the tender brains, the defective teeth, the knock-knees, the bow-legs, the humpbacks, the scrofulous necks, the large abdomens, and bad cachexias of the future generations, have commonly their foundations laid in healthy children by the unsuitability of their nutrition during the first two years of child-life, they would carefully refer this subject to the intelligent physician before acting on it themselves. Then we would be gratified to find the parents show in this important matter that same good judgment which experience has taught them to apply to their regular every-day business in order to insure success.

Very often parents are inexperienced in this matter, and follow the advice of some newspaper advertisement, whose object is to make money by finding victims to consume its goods; or they accept the dictum of some woman friend, who points to her child as an evidence of success in hand feeding. This child generally has only its avoirdupois or ability to live in spite of hard treatment to recommend it, and is really an evidence of failure rather than success.

Measuring Foods.

When measuring liquid foods for infant dietary, great care should be observed by the mother to arrange the daily mixing, so that all the food is one strength, and the amount fed does not vary in any way.

Exact measures should be used in preparing and giving the infant's food. Spoons are an uncertain and unequal measure.

To inexperienced mothers this may seem at first thought to be of less importance than many mothers have found by bitter experience to be the fact.

Let us look at the daily domestic situation. If any lady will make a collection of all the different kinds of tablespoons in her house and measure them, she will be impressed with their varying size. This can easily be done by filling a small cup with each spoon. If water is used in filling, there can be no mistake. The difference in the number of spoons required to fill the cup from the different kinds will show the difference in sizes of spoons.

This difference in sizes is perhaps more marked in teaspoons than in tablespoons. Great care should always be exercised in filling the spoon to its full capacity when it is used as a measure. Only filling to its fullest capacity is the correct measure. As the bowl of the spoon is broad and shallow, many think the spoon full when it contains little more than half measure.

Where a number of spoonfuls are to be used daily in mixing the food, the mother should try to measure the amount correctly into some small toy or fancy cup, and then use it as the future measure. Where this cannot be done, a particular spoon and a particular filling of it should be invariably used to avoid errors.

Spoons are the most uncertain measure that can be used.

When any food thicker than milk is used in the diet, a spoon measure is not safe. Of gruel, rice, porridge, or starch jelly, and other foods of that density, no two persons can measure the same amount with a spoon; nor can one person measure the same amount twice with any spoon.

Small variations in spoon measuring often sickens the infant.

Light feeding may be done from the parents' table, as long as the stools show good digestion.

The little variations thus made by a careful mother will seldom disturb the child; but the variations made in this way by a careless or overfeeding nurse has frequently given the writer sad experience, by causing indigestion and foul stools, the origin of which it was very difficult to trace.

The necessity for using unmistakable measures cannot be too strongly impressed on the mother. In strong, vigorous infants, these errors can be endured for a time; but in delicate, young, or dyspeptic infants, a variation of half a teaspoonful will often mean vomiting or foul, slimy stools.

Nursing and Feeding as Commonly Done.

While it is desirable that a mother should support her infant entirely during the early months on breast milk, there are many who cannot successfully do it and perform the other duties incumbent upon them. Their health is indifferent, or their labors are too irritating and uncertain to allow them to secrete a good quality or quantity of milk. Under these circumstances, the common habit of feeding small amounts of food while the mother takes her own meals, will at times lead to good results. In this way the child often receives food which corrects the bad effects produced by her poor milk.

Children kept too strictly on an unsuitable or weak milk diet soon show rickety or scorbutic results. If the additional food can be borne and digested, it tends to correct this error.

This occurs mostly with families who cannot afford to

It is safer to feed half meals frequently to a nursing infant, than whole meals occasionally.

hire a nurse to care for the infant. Unfortunately, tender and delicate digestive organs cannot always stand this trial at the parents' table, and many die. Only the strongest survive this treatment.

Nursing and Feeding Together.

Frequently we meet with women who wean a child, not because the milk is poor, but because they have not enough to satisfy the child. This is a serious error and should never be made as long as there is any reasonable amount of milk. When we cannot have a full supply of reliable food, we are always glad to have one-half that amount. It is an easy matter to feed partly when the infant can nurse the balance. Such children generally do well and grow rapidly. The little milk the mother can supply, when good, is of inestimable value, and may save the child from serious illness, or may carry it through some of the epidemic diseases, when only a small amount of food is needed.

With young infants, where this combination of nursing and feeding must be adopted, they should be carried along together in daytime, at least, feeding part and nursing the balance.

A whole meal of the new food should not be made at any one time, as doing this is likely to cause an attack of indigestion and subsequent diarrhea. Generally, it is best to feed first and finish the meal nursing, as then the child is not interrupted in going to sleep.

Commonly an error is made in these cases by retaining the breast for night nursing and feeding only by hand in daytime. Mothers must remember that when irregular

One whole meal of artificial food to a nursing infant often causes gastritis, fever, and diarrhea.

Weigh the baby every week. The scales show the actual progress. The eyes are deceived frequently.

intervals interpose between nursings, the milk is changed in quality and becomes colicky. Also, that when the breasts are allowed to rest longer than the regular time, they soon stop secreting, and weaning is the natural result.

Thus, regular feeding and nursing together secure better digestion, better milk, and more milk.

It is always possible to use a greater range of artificial foods when the mother nurses a part of each feeding. Bear in mind that in most cases it requires only one wrong meal to cause an attack of gastritis, diarrhea, or cholera infantum.

Dilute cream, sweetened lightly, should always be used as the auxiliary food during the first six months. When the infant grows older and has proven its ability to digest correctly the cream mixture, then nursing and feeding may be alternated, and stronger food used also. These infants require very regular weighing, to make sure that the mother's milk is sufficient in quantity and of a good quality. Such mothers are very likely to fail entirely in their nursing power.

The greatest watchfulness must be exercised in combined nursing and feeding to avoid unhealthy stools. Mothers who have only a limited milk supply are very likely to have also a poor quality. Their infants are continually having colic and disturbed sleep, with changed stools. Such mothers commonly do great harm to the infants' digestive organs by continuing to nurse them. After a few weeks this shows in attacks of indigestion, leaving the infants thin, irritable, and liable to frequent sickness.

Yellow, inodorous, mustard paste stools prove the correctness of the infant's diet.

Where the infant continues uncomfortable, and the stools are often unhealthy, it is always better to wean it.

Where there is a doubt about the quality of the mother's milk, it should be used alone for a day, and the character of the stools following this single feeding will show the suitability of the food.

How to Select the Dietary of an Infant.

This is one of the most important points in raising children, and yet very simple if given a little thought and careful watching.

In mechanical, chemical, and all other complex operations, the process is considered wrong or a failure when the product thereof is not up to sample. Why, in the human machine, should not this rule apply also? It does, and with great force, too; but we intelligent people of this nineteenth century are so accustomed to physiological errors, that a very large proportion of us have forgotten, or never knew, the truth in our infantile economy.

Apparently we have overlooked or forgotten that this natural infantile machine, when doing perfect work, yields a yellow product, perfectly manufactured in all its parts, and free from errors of decomposition, which show in off colors, bad odors, or undue liquidity.

While on a milk diet, such should and must be the stools of every infant for perfect safety and success—*yellow, perfectly digested*, of a *mustard consistence*, and *free from strong* or *disagreeable odors*. Given a child with such stools and a mother who sees to it that they are always that way, and you have a family who can afford

Green, slimy, or foul-smelling stools warn the mother of approaching danger.

to laugh at the terrors of the summer season, and stay at home while they do it. This child grows all the time.

On the other hand, look at the infant with green, slimy, pasty, or foul-smelling stools, and you see a child in imminent danger before or during the approaching warm weather, whether it remains at home, goes to the seaside, the mountains, or the country. For it there is no safety for its health, development, or life, as long as the result of digestion is of that green, unhealthy character.

How to Obtain Yellow Stools in Infants.

Granted, then, that yellow, inodorous stools of a mustard consistence are a necessity in a milk dietary, how are you to secure them? Two things must always be remembered in feeding infants—quantity and quality. Too much food of any kind, even the most suitable, will disagree and produce bad stools. Then reduce it till it is properly digested and gives the correct stool. This is then the proper amount, and must be continued.

When gradual reduction will not find a point where yellow stools result, the food must be changed entirely or in part, as it is unsuited to that child's digestive organs. Here the quality is wrong.

This simple process will always correct the evil, or show that the child is sick and needs immediate medical treatment. The ways of changing the quality are to lessen the milk proteid or increase the cream (page 98), or both, making only one change every two days, till the results of each change demonstrate their benefit or prove their failure. Seldom will you be required to reduce the sugar, but in some infants this, also, is necessary.

The fat in cream makes the stools yellow. The proteid or cheesy part, when in excess, makes them green and colicky. Too much sugar causes gas and colic.

Specimens of Difficult Feeding.

The following cases illustrate a few of the many difficulties a mother or nurse may have to contend with in feeding young infants. The conditions or combinations presented by delicate infants in their first and second years are so numerous that it would be futile to consider more than a very limited number of them. It is hoped that these reports of cases may prove interesting and instructive to those mothers and nurses now worrying over delicate babes, whose digestive glands are apparently having difficulty in appropriating enough food to properly nourish their owners. The accompanying pictures show the results obtained from some very uncertain beginnings, under the most trying conditions.

Case I.—P. K., aged one year. This pretty little fellow weighed eight and one-half pounds when born, and was healthy in every way, but his mother could not nurse him. He was fed all kinds of milk foods, and the amounts were carefully regulated by the mother. Nothing seemed to agree with his digestion. He was always cross and restless, with nausea and disturbed bowels. Stools were foul and very irregular in color, amount, and frequency. When six months old he weighed twelve pounds, having gained three and one-half pounds. As the summer was approaching, the writer advised the mother to employ a wet nurse, fearing the infant would succumb to the heated term.

After the wet nurse was secured, the child became happy, the bowels regular, and sleep natural. At twelve months old, when this picture was taken, he weighed

twenty-four pounds, having gained two pounds a month on the wet nurse, against a little over one-half pound a month on the best artificial food, prepared and fed by a most intelligent, careful, and industrious mother.

This boy is now six years old, strong and healthy, having had no sickness since the first six months.

This was one of the few cases where milk foods could

not be adjusted successfully to the infant's digestive power, and a wet nurse became a necessity.

CASE II.—R. F., aged seven months. This picture is that of a baby at seven months old. The history shows the mother unable to nurse her infants. She lost a previous

child from unsuitable dietary through extreme emaciation and loose bowels.

This child was fed, during the first three months, on all kinds of milk and infants' foods, but alternately gained and lost weight and size, as everything soon caused vomiting and diarrhea. He was always fed too much, and no atten-

tion was paid to the character of his stools. He seemed a hopeless case when first seen by the writer, as he was intensely emaciated.

In the first prescription, his power to digest dilute milk was tested and found almost lost, as it soon caused nausea and vomiting. He was then fed diluted cream with lime water, to which rice water was added gradually, after healthy yellow stools were first procured. The infant was weighed regularly every week, and the strength of the cream and rice water was increased as rapidly as healthy stools allowed, and the scales demanded, to make the weekly five to seven ounces gain in weight. The picture shows him in perfect health; happy, strong, vigorous, and full sized for his age. He had no more difficulty with his food, and continued on this same line of diet.

This case illustrates the common error of giving infant's food both too strong and too much daily. Had the feeding been governed by the principle of, "*not enough to cause vomiting; and only such quality as will give healthy yellow, inodorous stools*," he would have thrived from birth. His improvement was due to the intelligence and industry of a devoted mother. She adhered closely to the food prescribed, both in quality and amount, and thus made it a success.

Case III.—B. W., aged six years. This bright little girl, when an infant, illustrated the complete loss of power to digest either human or cow's milk, after cow's milk had been improperly fed to her. She weighed six and three-quarters pounds when born; was nursed successfully for three months, when the mother's sickness forced her to wean the baby. She was then fed on cow's milk, diluted in many ways, but with poor success.

She was seven months old and weighed only eight pounds when the writer first saw her and gave an unfa-

vorable opinion of her recovery, thinking the child had gone beyond that possibility. She was emaciated in the extreme, moaning continually, night and day, unable to

sleep, vomiting all food, and having frequent green, slimy, foul stools. She was only a skeleton in appearance.

As this was in October, and very warm weather, a

wet nurse seemed the only hope for the infant. Until one could be secured, she was fed beef juice only. This food checked the moaning, vomiting, and foul stools. All hand feeding was stopped when the wet nurse came, but her milk caused a return of the moaning, vomiting, and foul stools. Being convinced that the infant's milk-digesting power was destroyed, the wet nurse was discharged, and beef juice was resumed with egg water (and brandy during hot weather), giving complete success. After two months of this food, oatmeal water, boiled three hours, was added to the food, and malt extract, also, at each feeding. On this diet she grew steadily till twenty-two months old, when she was allowed some other food also. She is now six years old and perfectly healthy, having had no sickness in the last four years. Several trials of milk food showed her continued inability to digest milk during her second year.

The error here lay also in feeding the cow's milk in unsuitable proportions. If, when weaned at three months, while strong and healthy, her milk dietary had been carefully adjusted to her digestive power, she would undoubtedly have grown and thrived steadily. By the failure to do this properly, her milk-digesting glands were so irritated and damaged that they were lost entirely, and the power to digest milk was, consequently, a complete failure.

Case IV.—L. V., aged six years, is a stout little girl, who had a slow beginning. She was hand fed all forms of sterilized foods in large quantities, causing frequent vomiting, foul stools, and diarrhea. She became heavy, dull, and sluggish, with a large abdomen. At eighteen months old she would sit on the floor, take little interest in surrounding objects or persons, make no move

to creep or walk, and protruded her tongue. In many ways she resembled a cretin. The writer saw her first at this time, and suggested such changes in the amount and character of her food as would secure good and perfect digestion, as shown by healthy stools. An examination of the abdomen showed enough enlargement to bend the ends of the lower ribs upward and pull them out of position.

On the corrected diet after two weeks, the child showed animation, life, and interest in surrounding things. She commenced to creep, and in two months was trying to walk. The evil effects of her previous diet gradually showed in rickety weakness of the leg bones, as they curved under her weight, but these are gradually straightening up with her present superb health.

The continued poisoned condition of the blood from badly digested food in this child retarded her mental development and weakened the bones, besides growing an enormous abdomen. She is now as bright mentally as the best of children, but carries yet these marks of her weakened era.

Case V.—The following case illustrates the danger in feeding pure cow's milk: V. C. L., aged four years. This vigorous little girl is thin, but strong and healthy. Her mother consulted me in June regarding the proper feeding of her. She was then an infant three months old, well and healthy, fed on pure cow's milk. Not knowing the mother before, with the nearness of hot weather and the perfect health of the child, I told her I could not suggest any change except a wet nurse. This was not entertained, and the little one sickened with vomiting, diarrhea, and convulsions during the heated term. The writer feared she would not survive the attack. All

efforts to feed diluted milk, after recovery, proved failures. She was then fed on whey and rice water, with sugar and lime water added. On this she improved gradually. Some months later the mother desired to add milk to the diet, but found the addition of one teaspoonful to a meal again caused vomiting and foul stools, thus showing how poisonous the milk had become to this little one. As she became older, the food was gradually strengthened on the same lines as the stools allowed it, and the child thrived accordingly. She has not been sick, except with other forms of trouble, since the first year.

Case VI.—L. L., aged six years. This healthy little girl was nursed one month only. She was born in the fall, and fed all kinds of sterilized milks and infant foods in unlimited amounts. She was first seen by the writer when ten months old. She had then been suffering from diarrhea and vomiting for four months. The main idea in feeding her was to sterilize or boil all her food, and then feed all she would take. Sterilization was considered everything needed in her case; the kind and amount of food were secondary matters.

When first seen by the writer, the infant was naked, lying on a pillow on a table, and the mother was trying to sponge her. The infant's eyes were intently watchful of every move, lest it should be hurt, and cried with the least touch or movement, so sore and tender were its limbs. They were swollen and dark colored.

The mother had, for two weeks, kept the legs swathed in cotton batting, as they were too sore to be dressed. When she took her out of doors, she was chided by her sister, who thought the child was dying.

In this case, the diet was changed to an entirely raw

food—a little breast milk, beef juice, cow's milk, and orange juice. In two weeks she was well and happy, sitting upon her parent's arms and being carried around without the slightest evidence of her former tender and

painful limbs. She has enjoyed perfect health ever since.

With this child, sterilization was the main source of trouble. Overfeeding, probably, added to the difficulty also. Infants should have raw milk or cream mixtures

always, except when great heat makes it impossible to keep the milk from souring unless it is pasteurized or boiled.

CASE VII.—K. D. T., aged four years. This bright, strong little lass had severe struggles in her infancy.

When born, I warned her mother that we would probably have trouble feeding her, as the mother wished to nurse her, though she was weak and frail herself. She nursed

till four months old, when loose bowels and indigestion finally compelled us to wean her, after having failed to improve the mother's milk. That she should have been weaned sooner was proved by the indigestion and loose bowels, which continued for six weeks after weaning, while fed on pasteurized milk, well diluted. A diet of rice water, dilute cream, and lime water produced the same disturbance for two months longer. Egg water also failed to give relief. She was now ten months old. She was then placed on whey, strained Scotch oatmeal water, well boiled and sweetened, also lime water, with one teaspoonful of beef juice to each feeding. On this she improved, steadily gaining in flesh and strength for three months. Baked potato, with cream or beef juice, was then added successfully to her diet. Since then she has grown continuously, and has not been sick, except for measles, in the last three years.

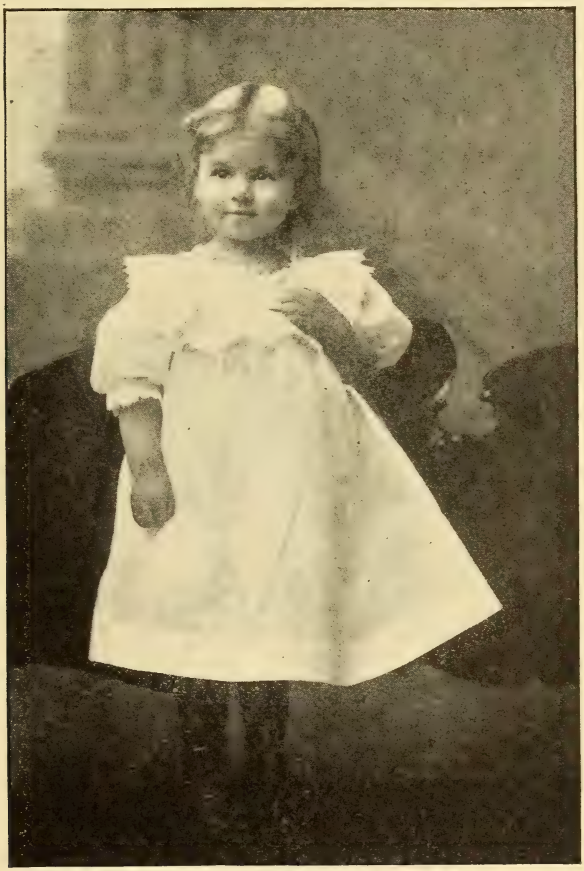
The error in this case occurred in nursing after unhealthy, foul stools commenced. The baby should have been weaned at once, but the motherly instinct was too strong to agree to this change at first.

Case VIII.—A. McM. This sturdy, active child is now four years old, and always going. She was hand fed from birth, and weighed six and one-half pounds when born. She was fed Mellin's food, malted milk, and modified milk, but mostly Mellin's food. All caused constipation or diarrhea, with distress, restlessness, and wakefulness.

When the writer first saw her at six months old, she weighed eleven pounds, her gain being nearly one pound a month since birth. Her face, limbs, and body were covered with eczema, the itching of which kept her awake at night. No attention had been paid to the quantity of

food given daily, which was about twice the correct amount. She was always greedy.

The diet was changed to rice water, cream, and a small percentage of condensed milk. The amount was care-



fully regulated to the child's digestive power, as shown in the stools. When constipated, oatmeal water was substituted for rice water. At eight months she weighed

thirteen pounds, and continued to grow steadily afterward. Her eczema gradually disappeared, and some months afterward her wakefulness at night also became less, so that at two years she rested fairly well.

In this case, unsuitable diet caused eczema and marked wakefulness. On about one-half the amount of suitable food she gained weight more rapidly, the eczema disappeared, and the obstinate sleeplessness gradually subsided. She has not been sick during the last two and one-half years.

Case IX.—John F. H., aged three and one-half years. This sturdy little fellow has already made health history. He was hand fed. First two months he had modified milk, vomited continually, and acted as if starved. He then had pasteurized milk; thrived for two months, then sickened as before, with vomiting and diarrhea. During his first summer he was fed on malted milk and had cholera infantum all the time, as his mother expressed it. He thrived for three months at first on the malted milk. During all these months he seldom slept more than half an hour at one time.

The salvation of this child is due to his refusal always to take more than a very small drink. This feature he continues to follow in eating and drinking.

When first seen by the writer, he was eighteen months old, pale, nervous, wakeful, and poorly nourished. His stomach and bowels were disturbed. Diluted cream was tried, but caused vomiting and diarrhea. He was then fed on rice water, with a little milk and sugar. This agreed with him. When any cream or milk drink was taken, it caused vomiting at once. On this diet, with tonics, he improved steadily. Even at two years old he could not drink milk or cream, and cannot eat meat now.

He lives principally on egg and milk toast in small amounts.

At two and one-half years old he had inflammation of the kidneys, and passed no urine for three days. At three years old he had croup five times, one time being membranous and requiring antitoxine.

There is little doubt but the difficulties in dietary were the foundation for his croup and kidney trouble. He now appears to be bright, strong, rugged, and healthy within certain limits, and can take milk or cream in small drinks.

The difficulty in feeding this child during the first year was due to the fact that the milk was not properly adjusted to his digestive capacity. His mother did not understand this necessity, and did wonderfully well when she kept him alive.

Case X.—Olive E., aged two and one-half years. This pretty little miss has been a continual siege to the endurance of her parents. Her mother could not nurse her. She was fed on barley water and cow's milk, but this caused vomiting. She was then fed all kinds of foods, with the same vomiting result. She again returned, after some months, to barley water and cow's milk. She would on this thrive for a week or two, and then have a sour vomiting turn for three or four days, during which she would lose flesh again. She could not sit up till she was ten months old. During all this time she was intensely nervous, and unable to sleep except in short spells of half an hour. She would wake at night after a short sleep and insist on playing or fretting. Her sleep and nervousness were so fickle and erratic that she required both parents and a nurse to care for her. She was very costive always and medication gave no relief. She also had convulsions.

When first seen by the writer, she was twenty months old, pale, thin and nervous, never ceasing to demand attention and also to be kept moving. She slept little, and mother and child were worn out. How she lived on so

little sleep was a mystery. She could not walk, but she whined, cried, or moved continually, and had to be always carried.

Cream and sugar were added to her barley water, and the proportion of these, as well as the amount fed, was

controlled entirely by the production of healthy, well-digested stools. She was also fed one-half teaspoonful of butter three times daily. Tonics and digestive assistants were given regularly. She improved at once in color, flesh, and weight, and walked at twenty-two months old. The difficulty in sleeping was not relieved, though she continued the same medicine for that which she was taking before the writer first saw her. This was finally stopped, and with outdoor exercise, better digestion, and more strength, she gradually improved in sleeping power. She is now strong and well, though at times having some indigestion still when kept in the house. She requires an outdoor life on her own feet, to allay nervousness, give good sleep, and permanently improve her digestive power.

This case also illustrates a bad nervous result due to long continued feeding on such dietary as did not properly nourish her, and also receiving more of it than she had power to digest. The indigestion in this case was shown by the repeated vomiting, extreme constipation, and nerve disturbance.

This case most strongly illustrated the folly of trying to produce sleep in a nervous, unsuccessful, poorly developed child by the aid of medicines. She was taking almost adult doses of the strongest sleeping remedies, and to produce any effect the dose had to be repeated two and three times each night.

In all these poorly nourished infants disturbed and very scanty sleep is one of the most trying features of the sickness. It is probably the most difficult to manage of all the errors, and requires the longest time for removal. Long after color returns to the cheek, and flesh to the limbs the nurse will complain bitterly of the deficient sleeping power.

Case XI.—Mary H., aged five years, shows the bad effects of poor food after weaning. She was nursed till one year old, and was strong and vigorous when weaned. Her parents are fruit dealers, and she was allowed an

unlimited fruit diet after weaning. She did not walk till after she was two years old, and then she showed the protuberant abdomen, knock-knees and crooked shins of the rickety child.

The large abdomen is due usually to continual overloading with poor weak diet, such as condensed milk, fruits, and proprietary foods. In some it is due to gassy fermentation, also from overfeeding, even when fed good

Case XII.

food, but in too large quantities. A large, protuberant abdomen in an infant is always a sign of weakness. In such cases the digestive fluid is not strong enough to

FIRST YEAR'S DIET.

Diluted cream for the first quarter.
Diluted cream and a little starch for second quarter.
Diluted cream, a little milk, and more starch for third quarter.
Little cream, more milk, and more starch for last quarter.

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preserve the large amounts of food, and fermentation or decomposition of it surely follows, distending the bowels with gas, and loading the blood and all organs with poisonous products, thus causing poor nutrition and a yellowish-white complexion in many.

CASE XII.—Anna H., aged three years, is the sister of Case XI. She also illustrates the bad effects of unsuitable food, fruits mostly. She nursed for a year, and showed no deformity till over two years old. Her large abdomen and crooked leg are due to the same unsuitable dietary given her sister. Their parents are Syrians, and the little ones suffer from excess of fruit diet, as well as crowded unsanitary quarters. In Puerto Rico, the poorer inhabitants live almost entirely on a fruit diet, and all the children have these large abdomens. Their open air life largely protects them from other deformities.

General Rules for Dieting Healthy Infants During the First Year.

Divide the year into four quarters.

During the first quarter, give only a milk diet—human milk, or cow's properly humanized.

During the second quarter, give only a milk diet; but in some healthy children with good digestive organs, a little oatmeal starch, or other cereal food, if well digested, may be added where a sufficiency of healthy milk can-

Obstinate constipation in the infant shows improper food or weak digestion.

Always consider the weight of the baby in deciding the quality and amount of its food.

not be secured. This new food should be prepared by thorough boiling for three or more hours.

During the third quarter, many children require feeding to properly supplement the mother's milk, which often fails entirely about this time, or is reduced in amount, not being sufficient to satisfy the child. The new food should be diluted cream or cow's milk, with small amounts of boiled cereals gradually added to it, so as to produce *healthy, well-digested stools.*

During the last quarter, all children should be weaned who are still nursing. The new food should be the same as in the third quarter, increasing the strength of the milk and the amount of boiled cereals as long as they produce healthy stools.

For children tending to constipation, boiled oatmeal is most suitable; and for those with loose bowels, boiled rice or barley gives the best results.

Either the constipated habit or the loose one may be due to imperfect digestion and require cereals previously partly digested. This is done by adding extract of malt to the boiled starch just as it is cool enough and ready to feed to the baby, instead of the plain boiled cereals. With failure to regulate the child's bowels in this way, we have generally to contend with an indigestion leading to rickets. Here the skill of the physician should at once be used to correct this damaging tendency, as no child can be safe in either the loose or constipated condition during the first two years of life.

Proof of perfect digestion, and consequent good nutri-

Increase the amount and variety of foods according as the stools allow you.

tion, is guaranteed only by perfectly digested stools. If these are correct and the infant secures enough food, successful development and growth will be the result.

Feeding Schedule.

Schedule for feeding an infant from birth upon humanized cow's milk, showing percentages of fat, sugar, and proteids, and the daily quantity of food.

No.	Age.	Fat, Per Cent.	Sugar, Per Cent.	Proteids, Per Cent.	Daily Quantity, Ounces.
I.	First and second day.....	.....	5.0	.....	4 to 8
II.	Third to tenth day.....	2.0	6.0	0.60	10 to 15
III.	Two to four weeks.....	2.5	6.0	0.80	20 to 30
IV.	One to two months.....	3.0	7.0	1.00	22 to 36
V.	Two to four months.....	3.5	7.0	1.25	28 to 38
VI.	Four to seven months.....	4.0	7.0	1.50	32 to 38
VII.	Seven to nine months.....	4.0	7.0	2.00	34 to 42
VIII.	Nine to twelve months.....	4.0	6.0	2.50	38 to 45
IX.	Twelve to fifteen months...	3.5	5.0	4.00	40 to 50
X.	Fifteen months, whole milk.	3.5	4.5	4.00	50

The range in amount fed results from the variation of weights in children of the same age. Newborn children generally average from five to ten pounds in weight, many being less, and others even more than this. No person would think of feeding a five-pound baby the same as a ten-pound one; so in all ages weight must be considered in fixing the amount to be fed.

By using this schedule, in connection with the feed-

Too frequent or irregular feeding causes colic and poor development.

ing rules given on pages 165 and 166, the food suitable to any healthy child can be at once selected. This applies to children whose digestive organs are natural and healthy, and have never been damaged by overfeeding or using unsuitable food. In damaged cases, the food suitable to their weight, not their age, is the one needed. In many of these cases, or most of them, only a diluted cream, with some well-prepared dilute starchy food, will be found successful. (See pages 109 to 112.)

Few children should be kept on a purely milk food till one year old. Such cases are the exception, and are only permissible when their digestion will not accept of an addition of starch earlier. The rule should be to use these percentages of milk elements with a fair addition of oatmeal, rice, or barley starch, as early as it will be thoroughly digested.

Errors in Frequency of Feeding.

These occur in nursed and hand-fed infants.

Too frequent nursing in some women causes a colicky milk, which does not properly nourish the child. This is shown by the green or slime in the stools. It is cross, restless, and sleeps poorly. This in turn disturbs and fatigues the mother, increasing the milk difficulty and making the child sicker. Such mothers should be rested well, the child cared for by another, and only brought to the mother for nursing at regular intervals. This will generally recuperate the tired mother and secure more and better milk. This is a common error, and prevents growth of the child.

If the baby cries, she is hungry.
If the baby whines, she must be hungry.
If the baby has colic, of course she is hungry.
If the baby does not sleep, why, she is hungry.
If the baby vomits half a meal, feed her again, she is hungry.
If the baby has fever and is restless, I would feed her again, she surely is hungry.
But I just fed her, and she vomited. Never mind, feed her again.
The above is common, but senseless advice often given to young mothers.

The same error in hand-fed infants results in overfeeding, a dilated stomach, and consequent poor digestion. These children grow large abdomens and have foul, unhealthy stools. One meal should always be digested before the next one is taken.

Right here young mothers will continually have to contend with the numerous suggestions of friends and older mothers that the baby is hungry and should be fed when it cries. Let her not forget that these suggestions are only surface opinions. They are made without reason, on the universal kindly impulse to feed an infant, and are most generally of no value. Let the mother not forget that crying with foul stools does not arise from hunger, but generally from the results of too much food.

Changes in Dietary.

Great care must be exercised in following the dietary and its results. Where changes of food are necessary or desirable, only one change in *amount* or *quality* should be made in any one day, and its effects on the stools noted carefully for two days before making another change. This will give time to prove the correctness of the last one, and avoid the confusion, which always fol-

Make only one change at any time in amount or quality of food. Prove it by a two days' wait till the stools show the result.

"By their stools ye shall know them," saith the physician.

lows more rapid changes. By following this plan, an error is detected at once, and the child little, if any, damaged before its correction is possible. This rule invariably secures steady growth and good health, as mistakes, if any, are short lived and easily corrected.

The Overfed Nursing Baby.

This, also, is often the baby that is fed every time it cries; but as we have no way of measuring the amount nursed daily, it is more difficult to convince the mother that she is overfeeding. All we can do is, show the mother that the surplus thrown up after each feeding is wasted food and strength, no benefit to the child, and a loss to her; that each meal should be digested before the next one is taken, and that unless these rules are observed, there is no chance to secure those yellow, inodorous stools, of a mustard consistence,—the only kind on which the child will steadily thrive, be happy, and free from colic and all bowel complications. Could we only grind this fact into every mother's fiber, indelibly and unchangeably, we would at once rob the nursing infantile period of all its dangers from teething and bowel complications.

As long as the mother with plenty of milk finds either curds, green, or slime in the stools, mixed with plenty bright orange yellow, she may be sure the infant is receiving too much milk, and will be happier and grow better with less.

The overfed child is always cross, gassy, and restless at night.

Overfeeding Causes Disturbed Sleep.

Troubled sleep always accompanies an overfed condition. The child will roll and toss around in bed, crying out and half waking. Strange as it may seem, the overfed infant will nearly always demand and take more drink, thus continuing this distended and distressed condition of the stomach. Parents, generally, do not realize this peculiarity, and friends never do. The latter always insist that this so-called cross baby needs more food, and advise accordingly. Such children generally suffer from repeated vomiting attacks and diarrheal disturbances. These attacks are often accompanied by fever, at times very high, which subsides in twelve to thirty hours; but in aggravated cases, may last for many days or even tend to assume a typhoid condition. Such children cannot thrive until their diet is reduced to the amount suitable for their digestion. This reduction must be continued till the healthy, well-digested stools show that the proper adjustment of food to digestive capacity has been secured.

How to Detect an Overfed Child.

The physician's attention is continually drawn to the baby on account of its crossness or colic Particularly is this the case with hand-fed infants. The cross baby may be any age, from one week to one year or more. It always vomits some, may have any condition of stool except *yellow*, of a *mustard consistence* and *inodorous*; and any number from none (except by help) to twenty in the day. Added to these symptoms is the fact that instead of sleeping as it should, the greater part of its time it yells and cries almost incessantly.

In cereals, the outside coat makes strength, the inside contents make heat.

The following conversation with the mother generally follows the physician's visit:

How old is your baby?

Three months old.

How long has it been cross like this?

Ever since it was born.

How heavy was it when born?

Seven pounds.

What is its present weight?

It weighed nine pounds last week. It was heavier, but it is falling off again.

What are you feeding it?

I have fed nearly everything, but nothing agrees with it except for a day or two. I have tried cow's milk, all the patent foods, crackers, bread, in fact everything, but all are the same. It cries all the time.

How often do you feed it?

Whenever it cries.

And how much do you give at a feeding?

All it will take, and then it is not satisfied; it is always hungry.

Well now, how many feedings does the child get in the daytime?

That varies. Sometimes it wants food every hour, and other times it may go an hour and a half, or even two hours occasionally.

Will it average three feedings in the forenoon and three in the afternoon?

Yes, sometimes more.

Well, how often in the night?

Pretty nearly the same, every two hours at least.

The overfed child is uncomfortable, and drinks because it is so.

Excessive feeding creates the desire for more. The overfed child divides its time between crying, vomiting, purging and drinking, with a little sleep intermingled.

Will it feed four times during the night?

Yes; sometimes oftener.

Well, six feedings in the day and four at night make ten feedings daily. Is that about the average?

Yes; fully that.

Now, how much do you give it each time?

Oh, I fill the bottle, and that holds six ounces, but it does not drink it all every time.

Well, about how much will it take each time on the average, two-thirds of what you prepare?

Yes, I think so; sometimes more, other times less, but fully two-thirds on an average.

That would be four ounces, and ten feedings of this daily would make forty ounces each day for the baby.

Yes, about that.

Well, now the baby weighs nine pounds. How much do you weigh yourself?

About one hundred and ten pounds.

You are then twelve times heavier than the baby, and of course you should be able to take nearly twelve times more food than the little one. The baby takes forty ounces, or two and a half pints daily. Twelve times that amount makes thirty pints daily. Do you think you could take that amount of food each day?

Why, certainly not. I never looked at it that way before. I thought if the baby cried it was hungry.

Such is the usual history presented by a mother who asks advice for a cross or colicky baby when hand fed.

"TOO MUCH FOOD"—THE INFANTILE EPITAPH.

Always give milk as a FOOD, and only at regular intervals. Give water to the craving, thirsty infant between meals.

Only by a comparison with her own digestive capacity can she fully realize the enormous mistake she has been making. Then, and only then, will she intelligently persevere in reducing the amount of the infant's dietary.

How to Reduce a Child's Food.

Overfeeding a child causes an abnormal growth or expansion of the stomach, until it becomes out of proportion to the rest of the body. This unhealthy enlargement is not accompanied by increased digestive power; but on the contrary, through fermentation of the excessive amount in the organ, a poison is established which irritates the stomach, reduces its digestive secretions, and establishes a craving thirst.

If the mother would treat the thirst in the baby as she treats her own thirst, she would at once solve this tendency to overfeeding. When thirsty herself, she drinks water; but when the baby is thirsty, she gives it milk, which should always be considered as a food and not as a drink. When the weather is warm or the baby unusually greedy, water should be given at all times when the child makes an unusual demand. In fact, the very conditions which make an unusual craving are the strongest argument in favor of a reduced dietary. These are usually hot weather, the thirsty craving of an overfed or irritated stomach, and the generally feverish condition of a sick child. Great care must be exercised to give more water and less milk in these conditions of the infant.

Reduce the infant's food by diluting it. This satisfies unhealthy craving for quantity, and secures rest to the tired stomach.

There are conditions which make a gradual increase in the child's dietary necessary, as in the convalescence from sickness and in the regular process of growth. In trying to meet these, feeding is often overdone.

Again, with a cross child the mother makes the error of attributing the crossness to hunger. Right here lies the common mistake. If the mother gave more water at some feedings, the child would not suffer so much from overgrowth of the stomach.

When it becomes necessary to reduce the diet, this thirst must be remembered and satisfied, or the child cannot rest. Probably the little one will refuse to take boiled water alone, and then it should be mixed with the food. In other words, to reduce dietary, make the food more dilute, and gradually reduce the amount as the child's thirst decreases.

The question will at once arise, "How much must I reduce the food?"

Until the stools are yellow, of a proper consistence and inodorous.

Food in the Stools.

This is a very common result, and often due to the very serious error of overfeeding. While this happens continually and does no harm, there are many instances where this little error is the commencement of the child's death.

Such an error as this becomes dangerous in delicate children, and particularly during the warm weather. While commonly food will appear unchanged mostly in the stools, yet often it ferments and causes attacks of

Food in the stools is dangerous to delicate infants. The diet should be reduced at once or the food changed.

very severe cholera infantum. As this is the most violent disturbance of the bowels, as well as the most fatal, it can well be seen that the overfed child should have a reduced dietary. Remember, also, that such children do not thrive as well, because the extra amount of food loosens the bowels and prevents proper nutrition.

Here we have two reasons against allowing a dietary where the food appears in the stools—poor nutrition and growth of the child, and the danger of causing cholera infantum. For this simple error thousands of children are buried every year in this country.

If a reduction of the food does not correct this error in the stools, then there is necessity for a change in the dietary at once. The food must be adjusted so as to produce yellow, inodorous, mushy stool, for the safety of the child.

This may involve weaning, stopping milk diet, humanizing the milk, or using only some of the components of the milk; but whatever it requires, must be done at once for the child's present and future safety.

Reduce the Food in Sickness.

Mothers should remember to reduce the food of the sick infant and increase the drinking of water in all thirsty forms of sickness. Too often the parents forget that milk is both food and drink, and do not stop or reduce its use temporarily in the beginning of the infant's sickness. Here always the same privilege should be accorded the infant that adults claim invariably for themselves in like sick conditions,—that is to stop eating till the appetite returns. This is an absolute necessity, and its neglect frequently means the death of the child.

A sick child has a reduced digestive power. This should always secure a reduced dietary.

Parents must always classify milk as a food, which is never to be given to the sick infant except as a food. Thirst must always be satisfied with water.

In direct proportion with the severity of the sickness is the necessity for this most rigid reduced dietary, especially in the beginning of the attack of sickness.

Summer Rules in Dieting.

The great mortality every year from disturbances of the digestive organs during June, July, August, and September, causes much anxiety to parents, and justly so, too. Most of this sickness and its bad results may be avoided by intelligence and watchfulness. All children under two years old require strict dietetic regulations to protect them at all seasons, but particularly during the warm weather, from June 1st to October 1st.

Prior to June 1st each year, the dietary of infants, in the first year particularly, should be established, and no changes, save in quantity, allowed till the following October. If this were carefully and strictly observed, there would be little, if any, danger from digestive or bowel disturbance during the summer. True it is, that excess of the most suitable diet will fail of perfect digestion at times, and cause a diarrheal disturbance; but the great majority of summer sicknesses are due to unsuitable quality of the food and consequent imperfect digestion.

Feeding Children of Wealthy Parents.

Wealthy people, who always have nurses to care for the little ones, are not exposed to temptations in feeding irregularly. When they are hand feeding the baby, it

The diet that is well digested in May should be continued till October. This protects the infant against cholera infantum in July.

The wealthy do not have everything. In health and growth their children have hard work keeping pace with the poor.

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is necessary that fixed rules should be given for dieting the little one, to avoid the disastrous results sure to follow any other course. While these fixed rules will generally save the child from the extreme dangers following digestive derangements, yet among these children we find most frequently the bad results following an insufficient or too rigid dietary. Too frequently the future success of the infant is jeopardized by present apparent success in feeding a sugary or thin food lacking some of the elements necessary for perfect nutrition.

This is illustrated in a wet nurse whose milk does not make the necessary one-half to three-quarters of a pound gain weekly.

It is also illustrated in a diet of humanized cow's milk only when the milk is poor in quality, or not properly increased in strength as the infant grows older.

Again we see it where much beef tea is fed instead of milk, or fed without a liberal addition of rice, barley, or bread.

Varieties in Foods.

Only during the early months of infantile life can it be said that the infant does not require variety in its food. More properly may it be said that variety injures the healthy nursing infant, but benefits the weaned one.

While we divide all food into two classes, animal and vegetable, and then consider all animal foods as nitrogenous ones, and all vegetable foods as starchy ones, we must not select one from each class and then continue to

The infantile digestion demands changes after weaning. These changes must not be made to an all starch or all animal food.

Small substitutions, not additions, of food, act as stimulants to the digestive secretions, and benefit the child.

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feed these without change, thinking we are thus supplying all the elements needed for nutrition and growth.

This process is successful in the early months of life, but when all the digestive glands are developed, the infant demands variety in tastes of food, even though the elements of the food are practically the same. The different flavors and tastes in milk, egg, and meat, give a relish to the taste and a stimulus to the gastric secretions and consequent digestive power that necessarily secures a better nutrition.

The same condition exists in the varieties of starch, oatmeal, rice, bread, biscuit, and light cake.

While cake certainly cannot be classed as a pure starchy food, the greater portion of it is made from flour which is a pure starch. The fact that starch in this form is received with such a relish by children, only goes to show that variety in the preparation of the food is also a valuable adjunct to proper nutrition. Infants' tastes should be studied after they are weaned and well in health. As soon as they refuse the food, or show a hesitancy in partaking of it, a change in the kind in that class should be tried.

Only two rules must be observed in this work with infants under two years of age. The first is to always make these changes subject to perfect digestion, as shown in the stools; and the second is to make no unproven changes during the hot season of the year. Violation of these two rules causes thousands of deaths every summer

Indigestion in the infant is most difficult to correct. Quality of food is next to quantity of it.

among our infants. In fact, such violations cause more sickness and deaths yearly, than do smallpox, scarlet fever, measles, and diphtheria combined.

When changing one food for another do it gradually, being most careful not to increase the actual amount of food at any meal.

Difficulties in Hand Feeding.

Nearly every woman and even some men assume to direct the dietary of their friends' delicate baby, but there are a few intelligent parents who have been compelled to realize from their own experience that this is in delicate children one of the most difficult things to do, and they avoid giving advice. In some cases, it is an impossibility to suit the digestive organs continuously. While the food will apparently be suitable, the child will be the subject of recurring attacks of indigestion or diarrhea. Efforts to keep within its digestive capacity lead occasionally to pale, delicate children, who are always a great anxiety to their parents. There is nothing more difficult for the physician to adjust than this dietary in many cases, and there is nothing so important for the future welfare of the little one.

Necessities Which Must be Observed in Hand Feeding.

The first necessity is to procure a food that the child can digest perfectly, as proven by the yellow semi-solid stools. The second necessity is that the child can digest enough of this food to nourish it and make it grow. The third necessity is that the food shall contain abundance

Every mother should observe regularly the odor of the infant's breath and the coating, if any, on its tongue. They indicate dietetic errors.

of all the elements needed to develop the child, both mentally and physically. Human milk does all of these, and nothing else has yet been found or made that can compete with it. Good cow's milk carefully adjusted to the child's digestive ability is the next safest food, and after these the meat juices, raw or cooked, with a fair proportion of rice or barley starch, promise most success.

Coated Tongue and Foul Breath.

The loving, nervous mother, in her continual joy and watchfulness, notices every change in the infant's condition. Continually does she notice the white coating on the infant's tongue and the foul odor on its breath as soon as these appear. These are important matters, though not heeded by many mothers with healthy, strong infants, who can resist the digestive disturbances of which these symptoms are an evidence.

Every mother should notice carefully the odor on the infant's breath, or rather the absence of odor, which is the evidence of good digestion. Where the infant's tongue shows a disposition to a frequent white coating, or the breath to become foul, the mother should change the quality of the food or lessen the amount fed each day. Improperly digested food is always likely to produce these results. The constant repetition of such diet s likely to result in nausea, diarrhea, or febrile disturbances. While these are not generally serious in cold weather, they commonly lead to dangerous or fatal results in hot weather.

Children who sleep with the mouth open always have

Mothers must avoid fixed rules in feeding. Each infant is a law to itself.

a foul breath in the morning. The morning foul breath is not referred to in the above remarks.

Ingrained Habits and Thoughts.

We are all the followers of habit. This propensity crops out early. The infant cries when washed or dressed, and having done so a few times continues to do so always.

The youth who learns habits of indolence fights for their continuance indefinitely.

The adult who has learned to smoke rarely stops.

The mother who has learned to feed her children all they desire, and whatever they desire, seldom can be taught the necessity of doing otherwise with another child, even when sick.

The friend or mother who has learned the habit of talking thus and so about infants, continues to push her advice about all infantile subjects, upon all the young mothers she knows, regardless of the different kinds of children and the different characters of the new mothers.

The mother of strong, vigorous children, whom she nurses most of the first year, too frequently lacks the patience and charity needed when considering the exigencies surrounding a mother with a delicate child, especially when hand fed.

The mother of a strong infant who successfully cries, yells, and moans through three months of green stools, colic and misery, and still survives, is too apt to think that the intelligent efforts of her young neighbor in checking such suffering in her infant are all nonsense.

The mother who refers all diarrhea, fever, convulsions,

Nature delights in variety. She never makes two infants similar in appearance or in dietetic necessities.

and other sicknesses, in infants over three months old, to teething or worms, sneers at the intelligent dietary and good management by which the young mother with her first infant in the hottest of weather avoids these infantile disturbances.

Many mothers in their obstinacy and clinging to old practices are like the anxious and distressed mother, who, when seeking advice from a physician for her sixth child, then very sick, deplored her sad bereavements as follows: "Doctor, I have lost five children while teething, and this one is going the same way as the rest did. I am sure I could not do more for them, for I bought them all the very best cornstarch I could get, and fed them nothing else."

Nor are the mothers alone; we physicians are much the same in many things. Nor are the mothers and physicians alone in this clinging to one idea. It is a part of humanity, and all do it in some lines. Let us, then, remember to be charitable to mothers, who *always* do the very best they can for all sick infants, according to their judgment and facilities.

Comparative Development of Nursed and Hand-Fed Infants.

Dr. Routh gives statistics obtained from records kept in the Children's Hospital, Manchester, England. These show that six children are perfectly nourished and well developed when nursed, for every one showing the same result from hand feeding, at one year old.

While this may be worse in hospital life than in private families, yet it shows where and how difficulties arise

Only with cow's milk is it possible to imitate good maternal feeding. No other food contains the elements needed for perfect development.

most frequently. It also shows the great necessity there is for education and judgment in this most important duty to our offspring.

Certain it is that this great disproportion in results is not necessary. While we must all acknowledge the great superiority of good maternal feeding during the first year, yet we cannot but deprecate the results above cited by Dr. Routh.

The experience of physicians in private practice shows first-class developmental results from hand feeding when intelligently done; but all have most faith in good maternal feeding.

The best development follows only one food, mother's milk. To obtain this result, all foods used must be copies of this diet. Only in cow's milk is this near being a possibility. In no other food or combination can these elements of nutrition be present or found.

Large Abdomens from Poor or Unsuitable Food.

Mothers should remember that only perfect symmetry in the shape of the baby harmonizes with perfect health. Often a large abdomen is overlooked by parents or ascribed to naturalness in the infant. "Oh! My baby always has a large stomach," many mothers will say. They do not seem to realize that this is unnatural and a sign of weakness Where is the healthy nursing infant with a large stomach?

Look at the infant fed on condensed milk and many patent foods, see the enlarged size of his abdomen; note his yellow-white color, and slowness in creeping, walking,

Weak foods make large abdomens and sluggish babies with weak legs.

Large abdomens are always due to disease or errors in feeding.

teething, and talking. When old enough to walk a little, or about eighteen to twenty-four months, also observe his crooked legs, his slow, lethargic movements, fewness of teeth, and lack of life.

Change his diet to a nourishing raw milk and starch food, properly prepared; give him that amount only which shows healthy, well digested, yellowish stools; and then note the improvement in life, animation, vigor, noise and happiness, which he soon displays. At the same time observe the reduction in the size of the protuberant abdomen, and you will be impressed with the fact, that as it grows smaller, the child in every mental and physical power grows larger. Any one following these changes will be convinced that a large abdomen is a sign of weakness in an infant, never natural in a healthy child, and always due in these cases to a poor, weak diet, and overcrowding of the digestive organs till they are large enough to receive the great amounts of this weak food required to nourish the body.

These children always remind the writer of the immense abdominal capacity of animals feeding on grass alone; or of those children in the torrid zone who live on fruit only.

Mothers must remember always that as the infant's abdomen enlarges unduly, so are her errors of feeding it increasing in like proportion.

The following babies illustrate this subject at different ages by the shapes and sizes of their abdomens:

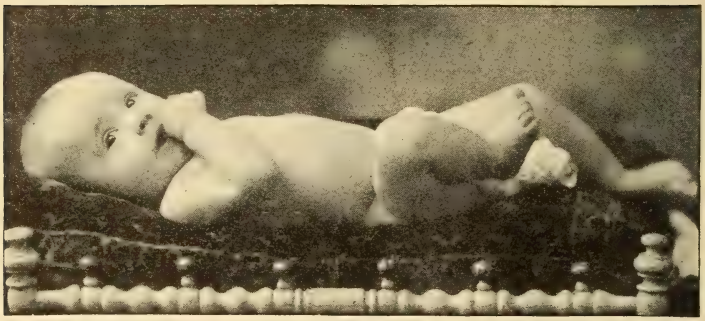

Figure 24.

This healthy baby is four months old and nurses his mother. Notice the size of his abdomen and where it joins the ribs. This is always the appearance of a perfectly healthy nursed baby. The abdomen never rises above the ribs.

Figure 25.

This shows the outline of a healthy nursing infant while sitting up. The abdomen does not project beyond the ribs on the sides.

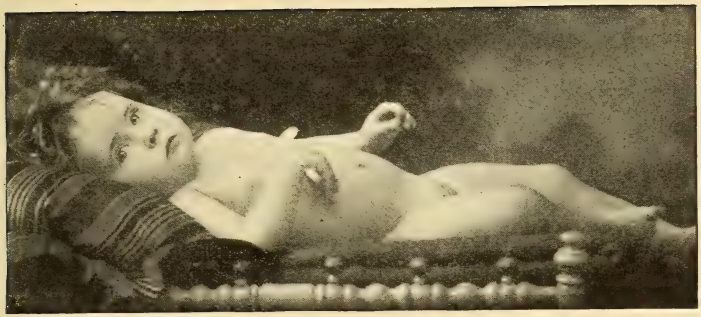

Figure 26.

This shows a little girl sixteen months old. She was nursed only four months, and then hand fed. She

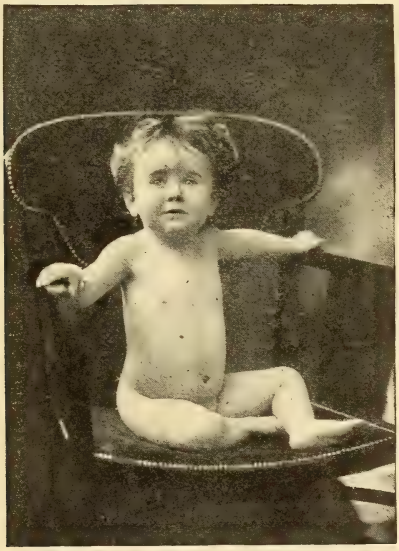

Figure 27.

suffered a serious sickness from injudicious feeding at ten months, from which she recovered on a dilute cream and rice-water diet. She preserved her symmetrical appearance by having only milk and rice or oatmeal

porridge, in suitable amounts. Her mother is guided entirely by the odor, color, and consistence of the stools in fixing the amount of food, and kind of it also.

Figure 27 is the sixteen months old infant in Figure 26. This upright position shows her correct abdominal form from another view. Children with abdomens like the above seldom suffer from stomach and bowel disturbances. They grow steadily and are strong.

Figure 28.

This little girl is twenty-two months old and makes no attempt at walking. Her legs are very small and also crooked. She is fat at all points except the legs. She has been fed almost entirely on condensed milk since birth, and her flesh is of the white, soft character, having little strength. Notice the shape and size of her abdomen, how it projects beyond the ribs. Such infants are always feeble, and are always dangerous in moderate sicknesses.

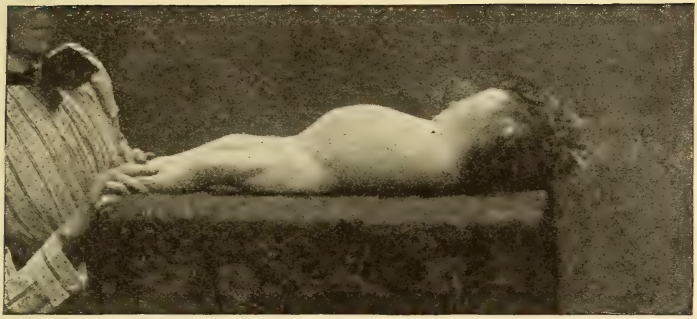

Figure 29.

This shows the abdominal appearance of Figure 28 when lying down. As she moved her arm while being photographed, she appears not to have the left one. The elbow can be seen just above the face.

Figure 30.

This little girl was nine months old, weaned at six months, and given all kinds of food which her mother

ate. As the mother expressed it, "She eats everything." She was carefully dieted at once, fearing an attack of diarrhea in the approaching hot weather. She improved rapidly, and the large abdomen was much reduced in size through having healthy yellow stools. Unfortunately, on a hot day she was given, when thirsty, a drink of cold milk instead of water. This was not digested, and caused the dreaded diarrhea. She recovered from this in a few days, and was playing with her toes one morning during convalescence, when she was seized with convulsions and died in half an hour. This is one of the greatest dangers following unsuitable feeding.

Figure 31.

This shows the abdominal appearance of Figure 30 when lying down.

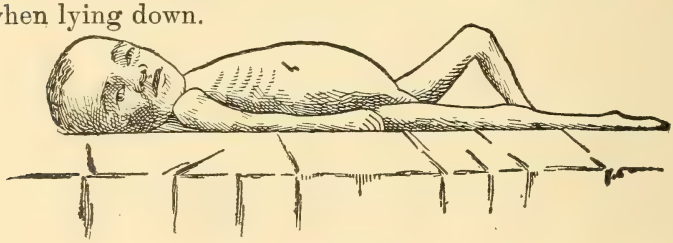

Figure 32.

This represents a rickety child, persistently and long fed on diet producing frequent gassy, foul, watery stools,

mostly of a greenish or clay color. The amount fed daily is far in excess of the infant's necessities, or its abilities to digest. Naturally, the food must decompose in the stomach and bowels instead of being digested, and Nature is continually trying to unload this foul mass by frequent stools. Notice the general emaciation and the large size of the abdomen. This child is starving in the midst of a great superabundance.

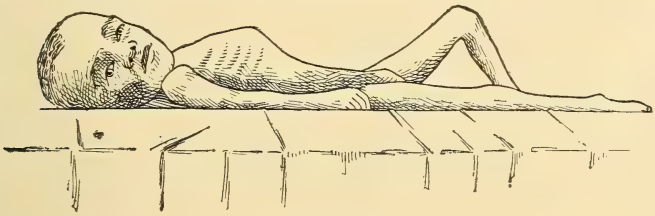

Figure 33.

This represents Figure 32 in an advanced stage of bowel disturbance. Persistent dietetic abuse finally causes Nature to repudiate such treatment, and an attack of cholera infantum, through vomiting and purging, quickly removes the large abdomen. Such cases always die, and do so quickly. Treatment is never of any benefit to them.

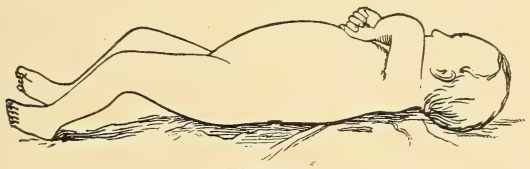

Figure 34.

This shows a plump, fat infant, receiving a too generous supply of condensed milk, prepared foods, or even cow's milk. Infants showing the above outlines are very exacting in their demands for food. They want to eat

frequently and in large amounts. Usually they are irritable in daytime and poor sleepers at night. Parents frequently look on the large abdomen in such infants as an evidence of strength. This is a mistake; it is an evidence of weakness and a source of danger.

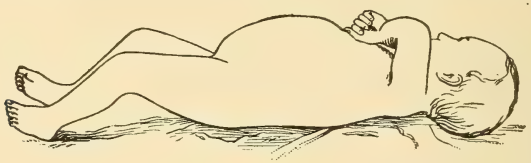

Figure 35.

This is an exaggerated condition of Figure 34. While, in cold weather an infant will remain well with this protuberant abdomen, it is almost sure to become sick during the first few hot days. In these infants the digestive glands are strained to their utmost to perform the labor imposed on them by such generous feeding. The hot days reduce the digestive power, and unless the food be reduced accordingly, diarrhea, fever and vomiting quickly ensue, destroying many of them.

Diseases Caused by Improper Feeding.

Improper feeding causes the following diseases and ailments:

Acute Diseases.—Crossness, sleeplessness, sore mouth, indigestion, vomiting, constipation, diarrhea, fevers, colic, eczema, skin eruptions, kidney congestion, convulsions, itching, frequent urination.

Chronic Diseases.—Indigestion, constipation, diarrhea, malnutrition, marasmus, ulcers in the mouth, imperfect development, slow growth, dwarfs, slow teething, bad teeth, crooked limbs, weak limbs, crooked spines, large heads, ill-shaped heads, bad complexions, face eruptions,

These infants should live outside the house, and have change of residence, in hot weather, to cooler parts.

large abdomens, enlarged liver, diseased kidneys, scurvy, rickets, and others.

With these difficult cases there is danger of becoming too limited in variety of food, and thus the infant gradually loses its appetite. The mother should continually add variety or change the cereal as the infant grows older, being careful to substitute rather than add food. Additions should be made in such small amounts only as can do little damage if not successfully digested. The same changes can be made in the milk dietary by feeding beef tea or mutton broth once daily. Variety stimulates the digestive glands to greater effort, and secures a better digestion and nutrition.

Infant Prescribing.

There is no single feature in the practice of medicine that requires such careful study and close observation as infant feeding during the first two years. Unfortunately, it is too often treated as a small matter, which any mother can handle successfully. Parents do not always realize that errors here are like the proverbial "grain of mustard seed," growing into the great tree of bad results in the future. Were it not that these errors too frequently produce irreparable results, permanently damaging the infant or laying the commencement of its death, it would not be necessary to give this subject so much attention.

The mother who accepts any person's directions, or the physician who does not consume more time in prescribing the diet than he does the medicine in ordinary cases of sickness, does not realize the importance or difficulties

The proper nutrition of the infant must be observed and secured in all sickness.

belonging to infantile nutrition. The foundation of clear medical work rests on a perfect understanding of this subject. Without this, too often, empiricism and guess-work reign supreme, and serious sicknesses are sure to follow.

Information Needed in Dieting an Infant.

Regarding the father:

His height, weight, general health.
Health of his family (tubercular or not).
His occupation (office or outside work).
His color (pale or florid).
What sicknesses has or does he suffer from?
Is he a hearty eater?

Regarding the mother:

Age? What sicknesses has she had? State fully.
Health now?
Health previous to pregnancy?
Present weight?
Former weight?
First child or not?
Has she plenty of milk for the baby?
Did she nurse previous child? If so, had she plenty of milk for it?
Was previous child a comfortable or cross baby?
Did it have much disturbance of the bowels, or eruptions on the skin?
Did it grow steadily and well, or slowly and irregularly?
Is it alive now? If dead, of what did it die, and at what age?

Good cow's milk is a better food for an infant than inferior or doubtful human milk.

The infant should be dieted so as to avoid sickness. Only a proper use of the elements in milk will secure this.

Is mother taking care of the baby herself?
Does she get her regular sleep?
Is she tired out?
Is her appetite good?
Is she suffering from any disease?
Is she worried and anxious about the child, or about other matters?
Is she a hearty eater?
Is she constipated? Is she taking medicine?
Does she eat meat, one, two, or three times daily?
Does she walk one or two miles daily in the open air?

Regarding the baby:

How old is the baby?
Does it nurse its mother?
How long did it nurse its mother?
What was its weight when born?
Is it nursing or hand fed now?
What was its weight when it was weaned?
What is the present weight?
Has the baby lost weight at any time? If so, when?
Describe the stools: Color, number daily, consistence (formed or watery), odor (foul or natural).
How long have the stools been of this character?
Does the infant pass curds in the stools? If so, how long and often have these curds been present?
Is the infant scalded and sore about the bowel or genitals, or both?

A knowledge of past errors in feeding the infant is essential to correct dieting as it grows older.

Is there slime in the stools? If so, how often?

Is the slime mixed with green or yellow? Is there much slime?

Does the infant vomit?

How often does it vomit?

How soon after feeding does it vomit?

How often does it feed at night?

Does the infant have much gas or wind in the stomach? Is it more than natural?

Does it pass much gas from the bowel?

Is this gas natural or foul in odor?

If hand fed, give the daily number of feedings, amounts, and kind of food given *daily* during:

First month.	Seventh month.
Second month.	Eighth month.
Third month.	Ninth month.
Fourth month.	Tenth month.
Fifth month.	Eleventh month.
Sixth month.	Twelfth month.

Give the character—color, odor, consistence (soft or watery)—and number of stools daily during:

First month.	Seventh month.
Second month.	Eighth month.
Third month.	Ninth month.
Fourth month.	Tenth month.
Fifth month.	Eleventh month.
Sixth month.	Twelfth month.

Are there any eruptions or sores on the skin?

Is the child paler than healthy children?

Does it show any bloom or color in the cheeks?

Is the skin wrinkled and loose?

A clear knowledge of the present condition and food of the infant will indicate its future progress. Unhealthy stools will upset the best calculations for futurity.

Is the skin mottled and elastic?
Is the flesh hard or soft?
Does the child sleep well? If so, when?
When does it sleep most?
How many hours does it sleep in each twenty-four?
Does the child cry much?
Has it had sore mouth? If so, how often?
How much do you now feed at each time? Ounces?
What food is the infant now receiving? State this clearly.
How often do you feed in each twenty-four hours?
How often in daytime?
How often between 10:00 P. M. and 6:00 A. M.?
Does the food show in the stools?
How long has food passed in the stools?
When food passes in the stool, are the stools slimy and green also?
Is the infant's milk boiled or raw?
Do you prepare all the food yourself?
Do you prepare more than one feeding at each time?
If so, do you keep the prepared food in a refrigerator?
How long is the child taking each feeding?
Do you throw out the food left after feeding?
Has the infant had any medical treatment? If so, for what disease or trouble?
What medicines have you given it?
Have you given anything to make the infant rest or sleep better?
What have you given for this purpose?

Developmental marks on the infant tell its past history and show how to avoid them in the future.

Every unusual feature in the infant's appearance or conduct is important in reading its present condition and future health.

Has the infant any teeth? How many?
Does it sit up alone?
Does it walk? Or creep?
Is it backward in its growth?
In what way does it show being backward?
State at what age it first sat up, crept, walked.
Has the child a large head?
Do the blue veins show large on the temples, so they can easily be seen a few feet away?
Is the tongue redder than other tongues?
Is it coated white? If so, state the part coated white.
Is this coating thin or thick, or only dotted over with white?
How long is it coated this way?
Is the mouth red and angry looking?
Is the infant's breath foul smelling? If so, how long has it been so?
How often has it smelled this way?
Does this foul breath show only in the morning, or continue all day?
Are the child's limbs sore or tender?
Are the joints swollen?
Which joints are swollen or large?
How long have they been swollen and sore?
How often has the child been sick?
What sicknesses has it had?
Has the child got the snuffles?

Only by knowing the result produced on the stools by each element in the food can the mother feed intelligently, have a healthy baby, and avoid the expenses of sickness.

How long has it shown the snuffles?

Describe all sores and eruptions which have appeared.

Give the location of all sores. (Be particular.)

State how long they remained before healing.

Do they leave any scars?

State the exact color and shade of these scars.

Doctor's Bills.

The great obstacles to proper feeding of the infant are:

First: The lack of knowledge in the parents.

Second: The meddlesome advice of friends, generally less capable than the mother herself to prescribe a correct diet.

Third: The inattention or lack of interest in this subject, by the family physician.

Fourth: The expense involved in employing the physician to correct and guide the infant's dietary.

We will speak only of the latter. To the wealthy this does not apply. They are only too glad to refer this important subject to their physician and follow his guidance, when once they realize that he can improve on their methods, and can intelligently point them the way to follow in future, so they can be their own guides, and thus raise vigorous, strong, symmetrical children.

But to those with less money, the expense is often the chief obstacle to employing the physician. This should not continue to be so, as the attendance required of the physician is very little, indeed. The changes in the

A mother should always have a clear knowledge of the requisites in feeding, so as to avoid damaging the infant's digestive organs.

infant's condition are so few and so slow that he does not require to see the infant frequently. After one interview or a detailed report of the case, all the physician requires is to know the weekly progress in weight, and the number and character of the stools daily. The former tells the infant's progress, forward or backward, and the latter shows where the errors, if any, lie each day. With these two, an experienced physician can direct the dietary in his office or one hundred miles away, as well as at the infant's bedside. Nor does he require these points often, unless there is a decided change. With an intelligent mother, who will at once learn from him the causes for changes in the stools and how to correct them dietetically, there is always abundance of time to make needed changes and correct errors. The doctor's bills can thus be reduced to a minimum, particularly if parents will not first allow the infant to be damaged or to lose much weight on an unsuitable dietary. To reduce this expense to a fraction of the cost of sickness, parents should at first obtain the physician's directions for the diet, and a clear idea of the correct stools and the way to produce them, and thus avoid the necessity for correcting subsequent errors and their consequent cost.

When it is remembered that three-fourths of all the infant's sickness during the first two years are due to errors in feeding, the economy of a correct dietary and how to secure a perfect development will be at once apparent. In this way summer sickness is always avoided during teething, and the infant grows all the year round.

By knowing clearly how to read the stools each day, a mother can detect and correct errors as soon as they appear.

By a carefully adjusted diet, the mother can protect her infant from all the following diseases:

Sore mouth.	Dysentery.
Teething fevers.	Rickets.
Slow teething.	Bone deformities.
Indigestion.	Vomiting.
Colic.	Disturbed sleep.
Constipation.	Irritated kidneys.
Diarrhea.	Cholera infantum.

CHAPTER VIII.

DEVELOPMENT OF THE BABY.

Infantile Immaturity.

A sensible mother adjusts herself to the infant, not the infant to the mother.

This is a complex subject. It requires careful study in each case. There is no absolute law applicable to all. Why is this the case? Because infants are not all mature when born. In the parts visible we see this continually; of the parts invisible, we see proofs of the same immaturity. The great trouble is to know how near maturity each infant is when born; and, knowing this, then to adjust our skill to its digestive ability.

We know the newly-born infant cannot crack biscuits. Why? Because it has not any teeth with which to do it. But we cannot say how soon any child will be able to do so, because we do not know how soon it will have the requisite teeth. So we accept of this immature condition, as an uncertainty, varying with different children.

We know that one infant commences drooling at two months, and another at four or five months. We also know that this drooling is the secretion from the salivary glands allowed to run out of the mouth, as the child is not mature enough to swallow it. This difference in time of appearance represents the difference in maturity.

No two infants develop alike at all points. Nature is rich in varieties always.

We see one infant learn to use a chair at stool when a few months old, while the same mother cannot teach her next infant to do this till it is twice that age. The same result is common with the urinary secretion. Will we say this is mental perversity, or will we sensibly admit that it is infantile immaturity? Failure, by whipping and other punishments, to obtain better results, finally compel unbelieving mothers to admit, "The child will grow out of it." Let us sensibly accept the fact that we must learn each infant's condition, and then adjust our care and feeding to that condition.

If we see this immaturity in development of visible organs and acts, we should accept the same possibility in the invisible, or internal, organs. All experienced parents do this, and the sensible inexperienced soon realize these facts, when properly presented to them. So we must read immaturity in the digestive power of the stomach and bowels when we find the child continually cross, restless, and colicky, and the stools all colors but yellow, when, apparently to the parents, a suitable food is given. Also, when we find a child failing to grow and increase in weight on the food proper to other infants, we should read immaturity of some one of the internal parts as the cause, and change the food accordingly.

When we remember that the invisible digestive organs are long enough, when stretched out, to reach across an ordinary parlor, and, when opened out, are as wide in many parts as a sash ribbon, or wider; when we also remember that the whole inside surface of this broad tract is lined with glands, folds, and elevations, thousands of which are only perceptible with a microscope, being too

Infantile immaturity is the rule at some point in all infants.

We beat the Mongolians in destroying our infants, but we do it in a more refined way.

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minute to be observable with the naked eye, we can readily see that, in the gradual process of formation and growth, from fetal commencement to first dental completion, there must be, and are, great variations in speed of development of each individual part.

If there be still doubters and unbelievers on this vital point, let them witness the futile attempts made to make a number of infants hear, see, or walk. Having so done, they must realize that Nature delights in irregularities, which our intelligence must read and adjust, accordingly, our actions to, and care of, the infant.

After carefully considering these facts, who will not admit that attention to, and study of the infant's every move and act is a necessity, in order to secure the one great object of parentage—successful development?

Having this latter in view, can we accept as a necessity three months' colic, lost sleep, green, slimy, foul stools, fevers, peevishness, pale face, soft flesh, weak bones, large heads, big blue veins, general backwardness, undue nervousness, and convulsions with the thousand and one other things proving *at some point* the immature or abused infant, as well as the inexperienced and uneducated parentage?

We read with horror of the practice followed by some Mongolians and Eastern tribes in casting their undesirable and unwelcome infants into the rivers, to be devoured by the occupants thereof. What are our boasted members of Western civilization doing with patent and other foods, but casting their infants into the rivers of indiges-

Digestive derangements kill more infants yearly than do diphtheria, scarlet fever, measles, typhoid fever, and pneumonia combined.

tion, diarrhea, colic, fever, imperfect development, malformation, etc., which are as destructive as the Eastern rivers, but not quite so rapid. Unfortunately, our way leaves more evidence of barbarism and cruelty, because slower in action; and we have become so accustomed to the sight that we daily pass it by, none noticing these cruel errors save those interested in this work of preventing and saving the infants, and securing a better and stronger development of our humanity.

So great is our familiarity with these errors that we look upon them as a necessity, and thus each summer complacently witness increased infantile mortality from digestive derangements without even thinking it to be wrong.

How quickly do we scan the deaths from diphtheria, scarlet fever, and all contagious diseases, and hold our health officers responsible for any failure in stamping them out. Yet we never cast a thought on this greater mortality yearly from unsuitable feeding, and never think of health officers educating the public against this danger also, as they do against contagious ones.

Elements of Nutrition.

Nature has established a table of elements from which a reliable food can be composed. Of these elements she herself makes different combinations, but varies very little in those combinations for any one species. Those differences are illustrated by the varying qualities in the milk of different women who raise healthy children, and also by the varying qualities of the same woman's milk at

Only five elements, but all of these five are needed to grow a healthy infant.

different times. But Nature never fails to put all the elements in every sample of milk. She may and does lessen or increase the amount of one or more elements, but she never omits one. This rule she applies to all mammalia with unswerving certainty, only making such modifications in the amounts of the elements as each class demands.

These primary elements in Nature's workshop are only five in number:

FAT.
SUGAR.
PROTEIDS.
MINERAL SALTS.
WATER.

With these five elements in varying proportions, Nature starts successfully all mammalia in the race for growth and perfect development; and just as she is generous in freely supplying these elements in proper proportion for a long time, so is the growth and development of the young one successful.

We have said these elements are used by Nature in varying proportions. Let us look at them and their uses as Nature designed them, and as she uses them.

She employs:

Fat (cream), for heat and the growth of bone and nerve.

Sugar, for heat and fat.

Proteids, for making muscles, ligaments, nerves, blood-vessels, hair, skin, nails and all tissues requiring motion and strength.

Salts, for stiffening the bones and keeping the blood healthy and liquid.

Cream, for bloom and roundness.
Sugar, for heat and plumpness.
Proteid, for strength and fleetness.

Nature is not an inebriate; she dilutes her drinks.

Water, for dilution and solution of food, and elimination of waste from the body.

Why does Nature vary the proportions of these elements for different members of the mammalia family? Simply to meet their necessities for existence.

Look at the elements and their uses; then think of the young one to be fed. The quiet infant who moves little for months after birth, develops little heat by exercise, so it requires plenty of fat and sugar to keep it warm. Nature is generous, then, by putting plenty of these two elements in its food.

In proportion as the infant is quiet and makes little effort for existence for months after birth, so does it require little proteid and salts in its food to grow the muscle, nerve, and bone to give it the strength for this toil. Nature, consequently, adjusts the amount of these elements only to its necessities, not any more; for this reason she puts very little proteid and salts in human milk.

To make sure of her work, she adjusts the digestive organs of each mammal to the proper digestion of only that proportion of these elements needed for its successful existence, and not for any more. The force of this provision is seen in the difficulty and disturbance caused in the young infant when it is fed on pure cow's milk. The young of the cow, for its preservation and feeding, requires that it should be able to walk or run from birth. This demands plenty of proteid, that strength-giving element, in its food, that it may grow abundant muscle, nerve, and bone to move or run about, and thus take care

The infant requires more sugar than of any other element during the first six months of its life. Human milk supplies this.

of itself. So Nature provides digestive organs in the calf as well as in all the lower animals capable of digesting this strong running element, proteid, in large proportion; but for the infant, she says there is no necessity for so much of this proteid, and its digestive organs are made accordingly, to use only a small amount.

From this it is apparent that proteid in cow's milk must be reduced for successful infant feeding, and sugar increased on account of the greater heat needed in its naturally quiet life.

Where the mother's milk fails to be digested correctly, and the infant's comfort and growth are disturbed thereby, the error will nearly always be found in the improper proportion of these elements in the mother's milk. This must be corrected before the infant can thrive.

Normal Development.

The nervous system of the young infant is more active and excitable than that of the adult. The brain is fifteen times larger, in proportion, than that of the adult, and increases in size most rapidly up to seven years of age.

The molecular changes in the infant are much more rapid on account of its great growth and change of life. The greater exposure of head surface in proportion to size renders the infant much more susceptible to cooling than the adult. In this way it loses heat much more rapidly, and is more subject to disturbances of its equilibrium. This renders it more subject to disease, with less resistance. For this reason, the younger the child the greater is the mortality.

More proteid, or cheesy constituent, is needed in the food when the infant moves about.

There are three times as many deaths in the first half of the first year as in the last half. There are more deaths in the first month than in any succeeding one; and there are more deaths in the first week than in any other like time. Many of these are from weakness due to the changed life and insufficient food supplied at this time; and to immaturity.

Pulse.—The pulse decreases in frequency as the child grows older. At birth, the normal rate is 130 to 135. During the first year it falls to 110, and during second year to 100; at five to eight years, to 90, and at puberty reaches the normal adult rate.

The pulse rate is increased by all emotions, such as crying or laughing, and by all forms of exercise, no matter how slight. It increases in frequency with weakness; and also in most diseased conditions.

Respirations.—The respirations are frequent in the infant, being about forty-five at birth. They are more while awake than while sleeping, and are very much increased during fever from any cause. They usually fall to twenty-five at three years old, but these figures may be greater or less, and the child remain perfectly healthy.

Height.—The average height of the male infant at birth is $19\frac{3}{4}$ inches. Insufficient nourishment and rachitis retard growth, but fevers favor it, while the infant may even lose weight.

Infants grow most rapidly during the first three months of life, and double their height by the sixth year. Growth seems to be most active in the springtime.

Liver.—The liver is very large at birth, being out of

The younger the infants, the greater is the proportion of deaths.

proportion to the other organs, and projects below the ribs on the right side.

Spleen.—This is relatively small at birth, and seldom shows any disturbance during infancy.

Pancreas.—This organ is very similar in construction and function to the salivary glands. It lies behind the stomach. Its function is to assist in digesting the starch and fatty foods.

Kidneys.—There is nothing particularly noticeable about these organs in infancy. They are imperfectly formed, but placed similarly to those in the adult.

Bladder.—This is small at birth, but soon becomes greatly distended. It occupies the lower part of the abdomen, and occasionally fills it up.

Stomach.—This organ is very small at birth, not able to hold two tablespoonfuls of fluid. Soon it becomes very much distended in some infants, particularly those hand fed, and in some assumes peculiar shapes. It grows very rapidly during the first three months, slowly in the fourth, and very little during the fifth and sixth.

The size of the stomach in nursed infants is ascertained by actual measurements to be:

At birth, $\frac{3}{4}$ to 1 ounce, or 6 to 8 teaspoonfuls.

At four weeks, $2\frac{1}{2}$ ounces, or 5 tablespoonfuls.

At eight weeks, 3 1-6 ounces, or 6 1-12 tablespoonfuls.

At twelve weeks, $3\frac{1}{3}$ ounces, or 6 1-6 tablespoonfuls.

At sixteen weeks, $3\frac{1}{2}$ ounces, or 7 tablespoonfuls.

At twenty weeks, 3 3-5 ounces, or 7 1-10 tablespoonfuls.

It will be noticed that the stomach does not increase much in size from the eighth to the twentieth week.

The stomachs of hand-fed children are usually much

Adjust the diet to all the digestive glands. Milk is the only food with which this can be done.

larger than these sizes, on account of the greater amounts of food received, and also the greater speed with which food is swallowed. If mothers would select suitable food for the infant, and confine the amount of each feeding to the healthy size of the stomach, there would be greater success in hand feeding, and a very much reduced mortality among these little ones.

Actual records from feeding infants on prepared milk show the following average amounts given at each meal:

At birth, 1 ounce.
Five weeks, $2\frac{1}{2}$ ounces.
Eight weeks, $3\frac{1}{4}$ ounces.
Twelve weeks, 4 ounces.
Sixteen weeks, $4\frac{1}{2}$ ounces.
Twenty weeks, $5\frac{1}{4}$ ounces.
Six months, $5\frac{3}{4}$ ounces.
Seven months, 6 1-5 ounces.
Eight months, 7 ounces.
Nine months, $7\frac{1}{2}$ ounces.
Ten months, $7\frac{7}{8}$ ounces.
Eleven months, 8 ounces.

Intestine.—This varies greatly in length in different children. The variation is mostly due to the different diet; but is partly due to the natural proportions of the infants. The small intestine grows rapidly after birth, about two feet in the first month. It varies in length greatly, being from eight to fifteen feet long at birth. At one year old the large intestine measures from two to three feet in length, and varies very greatly in its position in the abdomen. It is frequently placed low

Yellow, inodorous, mustard paste stools are the only proof that all digestive organs are correctly used.

down in the abdomen, and packed closely, causing constipation. It gradually rises in the abdomen as the infant grows older.

Duties of Different Digestive Organs.

Nature has planned the digestive tract of man so that different kinds of food are digested in different parts of it. Just as the mother assigns her household work to each member capable of performing that special duty, so should she be able to regulate the dietary of her children according to the different organs used in digestion, and the particular food digested by each one of these organs. Unsuitable dietary puts all the labor on one organ and leaves the others idle, or at least uses them unequally; and the result cannot be a success. As well might she expect her housekeeping to be a success by cooking alone without any washing and cleaning, or by washing or cleaning without any cooking. Such, in fact, is the principle followed most commonly by many when they select a food that works one organ and neglects the others; that overbuilds one tissue in the body and starves the remaining ones, thus making the infant one sided. It always results in all fat with imperfect muscles and bones to carry it, all brain and no body to support it, all bones and no flesh to cover them, or all stomach and no legs to carry it. Such are a few of the monstrous inequalities resulting from ignorance of Nature's plan, and then blindly diving into the grab-bag of proprietary foods for something to feed the baby. Such, in fact, is what is being done daily by those who feed their children by directions from the advertising col-

Every tissue and part of the body requires nutriment suitable for its own building, not that of another tissue.

umns of their morning or evening paper, or somebody's *say so.*

To obtain perfect results and well developed children, we must use all the digestive organs according to their development, and it is necessary not to forget that there is great variance with increasing age, and the same variety in digestive results among infants that we have among adults. What we need to always obtain for success are yellow stools of a mustard consistence and free from all bad odors. These are the true key to futurity, and can only be obtained by the proper food, proper amount, and healthy digestive organs in all their parts.

What are the digestive organs?

1. A mouth with or without teeth and with or without salivary secretions.

2. A stomach with glands and follicles lining it.

3. Small bowels with thousands of different follicles and glands lining and emptying into them.

4. Large bowels lined with innumerable glands and follicles.

The mouth receives the food, with teeth grinds it, and with saliva mixes it. As we have no teeth till six or seven months old, so does Nature design that we should have no grinding or food used that requires grinding.

Saliva is not secreted at birth, nor usually till three to four months after this; consequently, starchy food requiring mixing with saliva should not be used during first months of life. As saliva makes the first change in digesting starchy or flour foods, these should be excluded till after the saliva is secreted, and then only used very moderately, as stools show their proper digestion. The

Each organ, like each man, does its own share in the digestive work. Only the perfect work of all combined gives the good result.

secretion of saliva is small at first and increases with age.

The stomach receives the food after grinding, and also digests the nitrogenous or animal parts, except the fats. It does not digest flour or starchy foods, but conveys them, after churning and softening them, into the small bowel along with the fats and digested nitrogenous foods.

The small bowel with its own secretions and those from the liver, pancreas, Brunner's and Lieberkuhn's glands emptying into it, continues this work by digesting the fats, sugars and starches, thus making of all the foods a soft, thin digested emulsion as it passes along the ten or fifteen feet of its length till it reaches a valve which controls its passage into the large bowel. While in this lower part of the small bowel, this emulsion, called chyme, is rapidly absorbed by the blood-vessels, cells, and lacteals lining it, and conveyed to the blood current for distribution to the different parts of the body requiring nutrition.

As bone cannot be made out of nerve food, as skin cannot be made out of bone food, as muscle cannot be made out of fat food, in fact, as each tissue in the body is made and repaired only out of the particular element in this food emulsion suited to its structure and duty, it becomes at once apparent why a child's food must be carefully adjusted to the child's tissue necessities to make a perfect being.

As well might a mother resolve to make her bonnet, feathers, fur coat, silk dress, underwear, hosiery, and shoes out of any one piece of cloth, as try to make the

Children cut teeth in proportion as they receive the proper elements of nutrition.

perfect child out of one style of food. There must be variety, equal and suitable to the necessities and age. Only one food, *pure milk*, is capable of supplying all tissues, and that only for a limited time in the first year.

The large bowel receives the residue of the food passed from the small bowel. Here the processes of digestion and absorption are completed, and the waste or surplus dried for expulsion. Herein is the habit of looseness or constipation established, and that mostly by the character of this residue or waste. In this part do we find those foul gases evolved through decomposition of unsuitable and discarded food, and waste from worn tissues. Here, also, do we find the drying process excessively conducted from the refuse of unsuitable dietary, till the residue is too hard and dry for the tender bowel to expel it. Hence we have constipation.

Such constipation is mostly due to the undue presence of starchy (flour) food, or cheesy (cow's milk) food, in excess. By lessening the proportion of these, thus increasing their digestion, and increasing the fatty food and waste from the body, we usually relieve this constipation in the healthy child. This change lessens and eases the expulsive labor in the lower bowel, and thus regulates the stools.

Order of Teething.

From the moment the infant is born, the mother looks forward, with more or less anxiety, to the teething period of the little one. According to her inherited or imbibed ideas is the importance of this natural physiological act. Some mothers think of it with dread; others give it little

thought. The writer thinks that the mode of feeding governs the health during this period, and thus leaves impressions of greater or less danger during the first dentition. Certainly, in properly fed infants we see little disturbance of the bowels at any time, from teething.

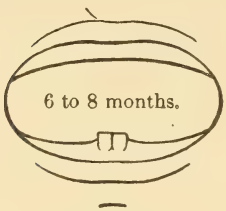

Figure 36.

Experience shows that children are more sensitive and have less resistance to disease generally, from the time they commence teething. Fevers, nervous disorders, sleeplessness, and bowel disturbances are the more common ailments of this period.

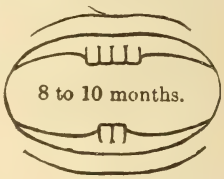

Figure 37.

A healthy infant generally commences teething at seven months, and finishes the process when twenty-four to thirty-two months old. When completed, the infant has twenty teeth. These last till the child is six years old, when the permanent teeth commence to replace these first ones. The first teeth generally appear in the following order and time, in a healthy infant (Figures 36 to 40):

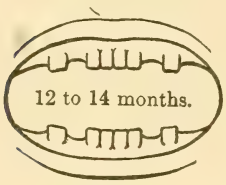

Figure 38.

At six to eight months, the lower central incisors.

At eight to ten months, four upper incisors.

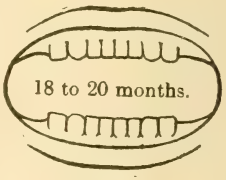

Figure 39.

At twelve to fourteen months, two lower lateral incisors and four first molars.

Teething causes little disturbance in a properly fed infant. Certainly it alone seldom loosens the bowels.

At eighteen to twenty months, four canines.

Figure 40.

At twenty-four to thirty-two months, four second molars.

Rickety children and many who have been often sick will be slower than this table. Many rickety children, those poorly nourished, may not have any teeth when a year or fourteen months old, and may be three to four years old before first teething is completed.

The Permanent Teeth.

These are thirty-two in number; but as the four wisdom teeth are often very late in appearing, and at times some of them never appear, some people may have less than thirty-two.

The permanent teeth are placed in the jaw below the first or milk teeth, and gradually grow larger, absorbing the roots of the milk teeth till they become loose and fall out. At times, in narrow jaws, the permanent teeth will not press directly against the first teeth, but will appear through the gums outside or inside the first teeth. This makes a very ugly, unsightly appearance, and the mother should consult a dentist about this deformity as soon as she sees it. Drawing the old tooth will generally allow the new one, if there is room, to assume the correct position. The permanent teeth usually appear in the following order and time:

First molars, - - - - - - 6 years.
Incisors, - - - - - - 7 to 8 years.
Bicuspids, - - - - - 9 to 11 years.

Wean always when the stools show a persistent unsuitability in the mother's milk. Foul odors, green colors, curds, and slime give this evidence.

Canines,	11 to 14 years.
Second molars,	12 to 15 years.
Third molars (wisdom teeth),	18 to 25 years.

The first four molar teeth appear at six years, but come behind the last molars of the first set, and the bicuspids appear in the places of the milk molars. As the child grows older, the jaw lengthens and leaves space for the second and third molars, which appear, as soon as there is room for them, behind the first molars.

The Nursing Baby.

In the great majority of children feeding during the first year, is easily accomplished. The healthy child, with a liberal supply of healthy mother's milk, as a general rule, gives little trouble in feeding till weaning time; that is, when this milk continues in full quantity and of the healthy quality.

Not every mother has sufficient healthy milk for the first year, or till the usual weaning time—ten or twelve months. In fact, very few can fully supply the baby up to that time. Usually there is a falling off in the amount at seven or eight months, and many show a marked decrease much earlier—at two to four months. In many mothers there is a decided change in the quality at any age, due to the health of the mother, her natural nursing power, or her mental condition.

Some mothers are very imperfect nurses, and their children never thrive after this unhealthy change in milk secretion is established; neither do the children of good nurses thrive after an unfavorable change in the milk

Less than four to six ounces weekly gain means malnutrition and bad development of the baby.

production at any age. It is common to see a babe thrive and grow well till a few months old, then become cross, pale, and restless, with disturbed stomach and changed stools. These latter changes are always ascribed to approaching teeth by some mothers and most of her lady friends. This is a sad mistake, and yearly costs the lives of thousands of babies, and causes the poor health and faulty development of thousands more.

A mother's first duty is to learn the proper care of her infant. This implies proper internal, as well as external, attention to all things necessary to secure a strong, healthy, well developed child. Every baby should add weekly from a quarter to a half a pound to its weight. The child who does not add at least a quarter of a pound weekly is commencing a dangerous condition, which, if continued, will end in death or bad developmental results. So we say, as a foundation for a true knowledge of her child's condition, every mother should use the scales regularly every week, and know, *not think*, that her baby is progressing satisfactorily. When there is a failure of full weekly increase, the true reason must be ascertained at once, and the error corrected. The error, in nine out of every ten cases, lies in the milk supply—quality or quantiy.

The cause of the error in the milk supply lies either in the mental or physical condition of the mother. The mental disturbance may be any condition, from worry over a servant or new clothes to the loss of parent or friend.

The physical disturbance changing the quality or quantity of the milk may vary from a dish of salad to a day of hard labor or a night at a ball.

A mentally disturbed, or anxious mother, makes a poor or colicky milk.

While these causes act in some mothers, there are many where it seems almost impossible to disturb this secretion. The very thought that the secretion may go wrong is enough to make it do so in many mothers; the anxiety lest it come wrong is sure to often secure this result in nervous, over-anxious mothers. A very careful study of each case is necessary to find the disturbing agent.

Teething: Its Constitutional Effects.

One of our inheritances is to ascribe all disturbances of the digestive organs to the teething process, from the time the child is four months old till it is over two years. Would that we could gather before our mothers the number of deaths and magnitude of sicknesses that are yearly piled on this sacrificial altar. With what horror would we behold it. At least, it would have one beneficial result. It would make humanity pause, and ask the questions, Can this be possible? Has Nature so designed her handiwork that one natural process in the development of our race should be a veritable Juggernaut? Is she so devoid in skill as not to be able to make this natural growth of teeth a less dangerous process? Or, for what reason, if so, has she willed that this immense slaughter of these innocents should occur at this tender age? Why at this age rather than any other?

These are difficult and unanswerable questions to the believer in this teething slaughter. Perhaps, if we pause again in our reasoning, we might possibly ask the question, Does this teething process cause so much damage as it is given credit for? Ask the young mother whose

Out of twenty sicknesses ascribed to teething, probably not three of them are correct. Properly fed infants do not suffer much from the teething process.

An infant is more sensitive to disease and digestive disturbances during teething.

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child has always yellow stools, and she says promptly, "I did not know baby was cutting teeth till I felt them." Ask the mother of a dozen children, all nursed, and she says, "My children cut their teeth easily." On the other hand, ask the mother who feeds every time the child cries, and she will say, "Oh, my child had an awful hard time cutting teeth;" and ask the mother who believes in feeding the babies from her own table all they will take of anything and everything, and she will say, "I lost my children during teething."

True it is, that the child's nervous system is more sensitive on account of the friction and division of nerves and gum tissues during the months of teething, but experience shows that carefully fed children evince very little, if any more, uneasiness or disturbance during this period than they do prior to or after it is over.

Unfortunate it is for our humanity that this false idea prevails, for to the idea itself, not the teething, immense numbers of children are yearly sacrificed. Young mothers, and many older ones also, think the children must continue suffering fever, diarrhea and vomiting till the teeth are cut, as they express it, thinking that this is natural and consequently must be. How many times is the physician called to witness the dire results of this barbaric idea, and frequently even too late to save the child from the grave, when the most careful examination of the mouth reveals no teeth in the process of eruption. This is, alas! another relic of our dark days

Attributing sickness to teething too often means the death of the child. The physician is not called early enough.

Avoid so-called teething troubles by fixing the summer diet in May. The infant with healthy yellow stools does not suffer while cutting teeth.

The properly fed child neither suffers nor dies from teething, and with its careful diet passes through the hottest weather as comfortably during the teething process as it could through the winter season. There is no fear of teething in the approaching hot weather for the sensible, experienced mother. The great necessity is to establish in May, the diet that gives the yellow, inodorous, pasty stools, and allow no change in its quality till the following September or October. The only change allowable is an increase in the amount of that food needed for increasing age. Children treated this way do not suffer any bowel disturbance from teething or any other cause.

Duties of the Kidneys.

We see that stomach, bowels, liver, pancreas, with all their smaller glands and follicles, have been busily engaged in preparing, sorting, emulsifying, and absorbing food to fill up the blood circulation and nourish all the different tissues of the body. Let us now look at the other side for a moment.

It is evident that this filling up process cannot go on indefinitely without a corresponding waste or overflow. While this is partly accomplished by the skin and the lungs, the great burden of this sewerage is performed by the kidneys. If the amount taken in daily is five times greater than normal, the amount cast out must also increase in like proportion. As all this necessarily passes

The kidneys eliminate most of the waste from the blood current.

Overfeeding the infant damages its kidneys. Foods making rank, foul stools always strain and damage the kidneys.

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through the kidneys, as well as all waste from the tissues, it can at once be realized what an immense strain is put upon those delicate organs, and what damage may result therefrom.

As the inebriate of adult life establishes Bright's or other kidney disease by the immense quantities of beer and other stimulants which he forces through his kidneys, so does the parent likewise in overloading the infant stomach correspondingly overload the kidneys and establish disease. Can this be possible, the parent asks, that this overloading of the kidneys in the first year or two will culminate in fatal disease twenty or thirty years after? This is not only possible, but probably the foundation of many, if not most, of the kidney affections showing in temperate people in youth and early life, as all the poisonous drink or unsuitable material entering the blood must always pass out through the kidneys. Stay their action for two to three days, any time in life, and we have a fatal result from accumulation of poisons in the blood. Not so with the bowels, as they may run even for a week or more without emptying, and not necessarily endanger life. Parents should always remember this, and also remember that a damaged kidney always remains damaged in that portion injured, the healthy part being compelled to do all the work. Were it not that the kidneys are larger than required in health and ordinary duties, these children would at once succumb to this dietetic abuse, through affections of these organs.

Overfeeding and unsuitable foods make dark strong smelling urine. This shows kidney strain.

The stools may stop for three or four days without derangement. The urine cannot do this.

Urine.

The importance of giving proper attention to this secretion cannot be overestimated. While a patient can go for days in succession without a stool, and enjoy good health, such cannot be said of the urine. Here continuous toil from birth to death is demanded for a proper elimination of the poisonous constituents taken in with the food, made by imperfect digestion, or resulting from the continuous waste accompanying life in us all.

While it is possible and common to have a small secretion of urine, during inactivity or the absence of fluid from the nutriment taken, yet this can only continue for a few hours before symptoms of disturbance and great thirst demand more drink. With this the kidneys find sufficient liquid to enable them to continue their work of extracting and eliminating from the blood those poisons which will in two to three days, if not removed, accumulate sufficiently to destroy life. This work is then so vital and important that it demands continual attention.

Even while the amount is sufficient, careful watching is needed to detect any difficulty in passing it, or any abnormality in the character of it. Ordinary healthy urine varies greatly in color, from that of ordinary water to an amber color, and in quantity, with the amount of liquid taken to a few ounces, according to the activity of the skin and bowels. A careful attention will commonly detect any unusual divergence from the natural color, odor, and amount. In children, a bright bloody tinge is sometimes noticed on the napkins from the uric acid in the

The urine must flow unceasingly to purify the blood every day, and thus avoid poisoning the infant.

urine. This is unusual and requires attention; also the dark yellow amber color, almost approaching blackness, which is seen in the jaundiced patient, and also in some types of fever. The bright color commonly indicates kidney irritation, and the dark color points to liver disturbance; but these are only some of the more marked changes easily observed by the eye. Where any doubt occurs as to the quantity or quality, a sample should be retained for the physician's inspection. Careful attention must always be given to this secretion, as a perfect reading of it represents the health or sickness of the infant.

Commencement of the Infant's Sickness.

A child, no matter how young, always tells when its sickness commences. You ask me, How is that? The child cannot talk. No; but it can cry, it can be wakeful, it can vomit, it can have fever, it can show something unnatural, by which means it will tell when it is sick. Take, for instance, any ordinary healthy child with whom you are acquainted; you know all its movements, all its habits, all its actions. When there is a deviation in any one point from its natural condition, that is saying, "I am sick." Therefore, parents recognize the commencement of sickness by this alteration. The mother will nearly always tell to the hour when the child became sick. An adult when sick will have to think awhile before he can tell this; a child knows it immediately, and says it at once by its unnatural conduct. Now, such being the case, it becomes a mother's or nurse's duty, when in charge of healthy children, to be always on the watch for changes, and then call the physician as early as possible. Do not hesitate

Examine the napkins for red spots, sandy deposits, and dark brown stains. All indicate diseased conditions.

The child always shows by its changed actions and temper the exact time when its sickness commenced.

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because many a child's life and the health of other's may be endangered by a few hours' delay. The evidences of infectious diseases may be early recognized in many instances, and the health of other children secured by prompt attention.

CHAPTER IX.

CARE OF THE BABY.

Infants Under One Year Old.

An infant who feeds after nursing shows a deficiency in breast milk. This child is hungry and wakes frequently.

May be divided into:

1. Those nursed.
2. Those hand fed.

1. Those nursed may be subdivided according to digestive power into:

(*a*) Nursed entirely till weaning time, ten to twelve months.

(*b*) Nursed partly till eight or nine months old, and also fed dilute cow's milk or cream and some boiled cereal on account of failing milk supply or poor quality of it.

(*c*) Nursed two to three months and fed diluted cream and milk alone or some boiled starch water also, to supplement the milk supply or improve the nutrition of the infant.

The younger the infant is, the more dilute must be the food given to supplement the mother's milk. Where the weekly gain in weight of the infant does not reach four ounces, supplemental feeding should at once be commenced.

Where doubt exists about a sufficiency of mother's

When short of milk, always feed diluted and sweetened cream before nursing.

milk to satisfy the infant, it should be fed after nursing. The infant who has had plenty will not drink; the hungry one will. An infant who cannot sleep and is not in pain, or who grasps and lets go of the nipple frequently, is being starved.

All increases or changes of food to be successful must produce healthy yellow, inodorous, well-digested stools. This rule does not apply to the feeding of raw meat or meat juices. In these cases, the mother must be governed by the comfort, sleep, and naturalness of the infant, rather than by the stools, as these are dark colored and of a rank odor if a raw meat or meat juice diet is used.

2. Hand fed infants may be classified, like nursing ones, into monthly periods, by substituting healthy cow's milk or cream in the humanized form, with cereals in place of breast milk. So great have been the advances in making, selecting, caring of and humanizing cow's milk during the last few years, that the necessity for wet nurses has been greatly reduced, provided the child has not been first damaged by injudicious dietary. As this occurs so frequently, mothers cannot be too careful in starting the infant's dietary in the proper cream direction, and then watching always for yellow, well-digested stools, so that no error can occur to prevent its even and steady growth.

Every child should have at least three to four months' healthy nursing of mother or wet nurse, if possible, to give it a fair start in life. Children who have this will be more easily fed and more successful in growth than those who are hand fed from birth. Children born in the spring should have more than three months of nursing, as it is unsafe to wean them in the hot weather.

The mother should nurse the infant for two or three months if successful in doing it.

Weigh the Baby Regularly.

In no house should the weight of the baby be in doubt or uncertainty any week of its life. For thirty cents any hardware store will supply spring scales (Figure 41), good enough to show comparative progress in the little one. Every child, when properly fed, shows daily progress in weight. This varies at different ages in every child, and also with different children. A child should increase at least four to five ounces weekly during the first six months, and a little less weekly from six to twelve months.

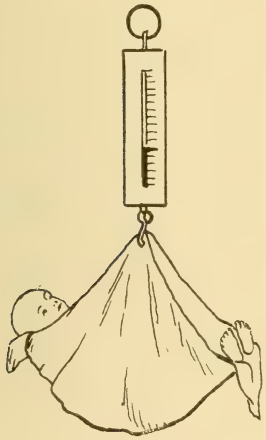

Figure 41.

Where a child does not make this progress, the parents should at once seek out the cause, for now is the time when damage commences, and the foundation for future disease and deformity is laid. A child which does not gain steadily in weight is in a dangerous condition. Among these children, summer bowel disturbances mainly show themselves and give their great mortality. These are the children who in after years show the marks of a poorly nourished era in infancy.

Weaning the Baby.

This is a very important matter, and one which should never be commenced without first carefully considering the subject and deciding upon the necessity for it. Great diversity of opinion exists among mothers as to the

Sudden weaning sickens and kills many children.

Weaning should be done so carefully and slowly that the infant does not recognize the change.

proper age, season of the year, time of the moon, condition of the teeth, ability to digest, condition of the bowels, and general health of the child necessary before commencing this important change. There are again other mothers who consider their own health and condition before contemplating this change. Again, there are mothers where this necessity for weaning does not allow them to consider any of the above points, where in fact it must be done regardless of any infantile conditions which may be present. This latter is frequently accompanied by sad and trying, if not fatal, results to the little one.

Where we have a choice, it is well to nurse the child till it is ten to twelve months old, according to the season of the year. Approaching hot weather is the only condition which presents tangible reasons for weaning before a healthy child is a year old. It is better to wean in May at nine or ten months, than in July or August at a year old. As between weaning a healthy child of nine or ten months before the hot weather appears, and the same child after the hot weather has passed by, or during the hot months if the necessity for it arise, there should be no doubt. The object to be sought is a good condition of health, and a dietary which you can control during the hot or dangerous months, when so many children die of digestive disturbances and their bad sequels. This cannot be done while depending on the mother, whose health or milk may, and most likely will, become deteriorated during the hot season.

Few women can successfully nurse through the second summer, and when the heat causes failure, the child must

Change or increase the diet when the infant does not gain four ounces weekly.

Diet the child properly, and you can wean any time of the year if necessary.

Bad odors, green color, slime, or watery stools show the food is not agreeing with the infant.

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be weaned under the most unfavorable conditions, that is, when sick, its customary food lost, and the digestive organs irritated. By weaning carefully in May or early June, when healthy, no disturbance is caused, and a reliable and unchangeable diet is established.

This new diet must not be changed, except by increasing the quantity till the cool weather of October returns. Then nearly all danger from digestive disturbances has passed by, and an enlarged and more varied dietary can be adopted with safety.

The necessities in weaning a healthy baby are to so conduct the change that the child remains healthy; in other words, make the changes in food so carefully, in quantity and quality, that the digestive organs are not disturbed. This can only be done by supplanting a small amount of the mother's milk with humanized cream or cow's milk once daily, and continuing this if satisfactory yellow stools follow it, for two days, before another addition may be made.

Only a portion of any meal should be changed at once, not a full meal, as it often requires only one meal to cause vomiting and diarrhea. By always waiting two days to prove a new food or addition before making another change, an exact knowledge of what agrees and what disturbs is obtained. New foods should always be tested as part meals only, and several half-meals are safer than one whole meal in any day.

Make only one change in the kind or amount of food every two days.

Children nursed over a year are never as healthy as those weaned when a year old.

When diluted cow's milk or cream is successfully taken, then oatmeal or rice, boiled well for three hours, can be added in even teaspoonful quantities to the milk, and continued in this amount for two days before another increase can be safely made. When the natural, well-digested stools, of proper color and consistence, free from all bad odors, show that cow's milk and the starch of oatmeal and rice are properly digested, there can be no mistake made in gradual weaning, if this food is not given in too large quantities at a time. This mistake is quickly detected by watching the stools and their odor. Errors will at once show in their changed character. When a two days' proof of each change is exacted, little errors only can occur, and these are easily corrected, by falling back to the last proven successful change.

Weaning should be completely perfected in daytime, before commencing to change the night dietary. When the child can digest a fair meal of milk, with well-boiled oatmeal or rice, the principal requisite in weaning is secured. Completing the change is only the judicious addition of these to each meal in not too great amounts.

After weaning is completed, other articles in dietary may be considered when safe to do so. The cow's milk and starch of any cereal, represent all the elements needed in the infantile dietary, and may be continued indefinitely. These two articles will give perfect nutrition.

When the above precautions are not observed in quality and quantity, the child is likely to suffer from stomach and bowel disturbances, which may seriously

If possible, avoid weaning in hot weather.

It is better to wean when the mother's milk produces foul, green, or watery stools.

endanger its life. If successfully weaned, it continues to grow without any interruption from weaning.

Sudden Weaning.

Sudden weaning of the baby is never safe, and the younger the child and the warmer the weather, the greater is the danger. Where the age is over six months and the child partly fed already, the danger is not so great; but it is a common occurrence to find serious sickness result from injudicious feeding, even while nursing, as well as while weaning, and many deaths can be directly traced to dietetic errors at these times.

Right Time to Wean.

Weaning should always be accomplished before the child is a year old, and while it is in *good health.*

Exceptions to this rule occur from climatic and health reasons.

A child should never be weaned from choice during June, July, or August, and rarely during September. This may necessitate weaning at nine months old, or not till thirteen months old.

A strong idea prevails among mothers in favor of nursing through the second summer. This is always a mistake. Rarely do we find a woman who nurses perfectly after ten or twelve months. True it is, that many will do it, but these children never thrive as well after ten months as they have done before it. They suffer greatly from colic, indigestion, diarrhea, and consequent crossness. It is among such children that we find fatal summer

Always wean while the child is healthy and before a year old, if possible.

disturbances, and who, if they survive, are prone to be rickety. The milk of the mother is liable to unavoidable changes, and should never be relied upon for the second summer, as it may compel the child to be weaned during warm weather, and when sick.

Weaning During Sickness.

Frequently we find during sickness that the child's stools show imperfect digestion, though the sickness is not from that cause. Such cases will commonly not improve in their sickness till the diet is changed. The continued irritation and loss of sleep from the unsuitable food effectually prevents improvement. This is always an unfortunate complication, and materially enhances the dangers of even an otherwise moderate sickness. This occurs, of course, at all ages, but is more common as the child grows older and its mother's milk is less suitable as the only diet.

Requisites for Successful Weaning.

1. A healthy child from three to twelve months old.
2. Substitution of food, not an increase.
3. Pure cow's milk or cream diluted (page 110), as the first requisite.
4. Well boiled (three hours) oatmeal or rice, a second requisite.
5. At first, parts only of any meal should be substituted.
6. Make only one change at a time.
7. Wait two days before making the next change.
8. Natural stools—yellow, inodorous, and mustard paste consistence—are proof of success.

Overfeeding or an unsuitable food causes colic and crossness in the infant.

9. Change the day dietary successfully before attempting to change the night feeding.

10. No full meals of the new dietary should be given till perfect digestion is proven all day in part meals. The healthy, well-digested, yellow stool, void of rank odor and well formed, is the only proof of success.

The above conditions are ideal. Unfortunately, too often the sick child must be weaned, and then the above requisites must be scrupulously observed to avoid a serious sickness.

Cross or Colicky Babies.

Any deviation from the proper quality or quantity of milk is shown in the colicky or cross condition of the child. Parents should always remember that the crossness is an evidence of an error or ill health, and this, in the vast majority of cases, arises from distress in the stomach or bowels. The child is never cross from its natural disposition. It always is cross, merely as an expression of suffering. This is the only way the little one can tell its nurse or mother that all is not right with it. In this manner it calls for relief, and a proper understanding of this infantile language leads, or should lead, to a removal of the irritation, and consequent crossness. While some delicate children have very defective digestive organs, and consequently are cross from this cause, the great majority of so-called "cross babies" have healthy stomachs and are amenable to treatment.

This treatment in some may be medicinal only, but in the vast majority it will be largely dietetic. Errors in the milk, due to the health of the mother, her diet, her

A cross baby is always sick, more or less, generally MORE.

Crossness, without ample gain in weight, leads to sickness.

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occupation, or her mental and physical condition, most frequently give the solution of the difficulty.

While some cross children thrive and improve in spite of their crossness, they do so because they have inherited strong constitutions and good digestive organs. They would do much better if they had no cause for crossness.

Other frail children gradually fail under this cross habit, and aside from the distress and anxiety they cause, soon show the rickety or scorbutic condition, develop slowly, become pale and anemic, suffer from stomach and bowel affections, are nervous and liable to convulsions, and generally die when attacked by the usual infantile diseases. Even when they survive, they carry the marks of their cross era, either in poor teeth, weak digestion, bone deformities, imperfect development, or strong liability to show any weakness which may be in their ancestors. The great bulk of our deformed, bow-legged, hump-backed, hammer-headed, sallow, ill-looking specimens of humanity that we see on our streets daily, can trace their bad history back to a poor ancestry, a cross infantile era, or both.

From the foregoing remarks, it is plain that cross babies may be divided into two classes:

1. The healthy cross.
2. The sickly cross.

The former are those who look perfectly well, are fat and strong, with the bloom of health in their every feature, and make a weekly increase in weight of over five

Eating too much meat, milk or eggs, will often cause colic and crossness in the infant.

The mother should stop eating potatoes when her infant is colicky and cross.

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ounces regularly. The latter are those who look pale and pinched, with soft flesh, and disturbed digestive organs, showing unhealthy stools. They make less than the necessary five ounces weekly for a healthy child.

In the first class, or the healthy cross, if nursed, the mother should seek the error, in her worries, overworking, overeating, or eating unsuitable food. If after correcting her worries, reducing her toil, and eating less, the infant still remains cross, the cause will usually be found in some one article of her own food, which she cannot digest perfectly. In such cases, the writer has succeeded usually by having the mother refrain from eating for a week, one article after another of her regular diet till the offending one is found. This he has usually found in the meat; if not found in the meat, it is usually found in the potatoes. By persevering in this manner over the different items of the food, it is very seldom that a patient mother will not find a complete cure for the crossness of the baby, and quickly convert it into a pleasant, laughing, comfortable child.

Where the infant is hand fed, the crossness is traceable to the kind of food, or to overfeeding. Here the amount should be lessened, and if that does not give a cure, then the quality is in error and the food should be changed.

In the second class—the sickly cross—those making less than five ounces weekly, if nursed they usually will not thrive till given a healthy wet nurse, or weaned entirely if the season allows it. Usually, these cases are starving, even though liberally fed. They cannot digest

By stopping one article after another in the mother's food, the cause of colic or crossness in a healthy infant is soon found.

Crossness and colic in an infant making less than five ounces weekly, demand weaning or a change of food.

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the unsuitable food, and suffering with hunger makes them cross.

Cross hand fed children with healthy stools are usually hungry; those with foul smelling and otherwise unhealthy green or watery stools are wrongly fed. In all this second class of cross infants, if not corrected quickly, the result is poor growth and development, followed by death from diarrhea or the usual epidemic infantile diseases.

Damaged Infants.

By this we mean infants who have been wrongly fed, thus checking their growth. This results in slow increase of weight, no increase, or in some a decrease, according to the extent of the error and length of time the unsuitable dietary has been continued.

The adjustment of food to such cases is generally an uncertain task. The selection of the dietary must depend largely upon the history of the case and the previous food. Parents must bear in mind that these infants are often damaged beyond repair, and to prevent this fatal result, errors in dietary should be promptly corrected when first seen.

The early detection is best secured by regularly weighing at least once a week, and twice in serious or very young cases. Failure to increase in weight, or only slight increase, generally shows the error before the child complains or becomes restless. Any kind of stool other

A child is as old as its digestive glands are healthy.

A child is usually damaged through its digestive derangements. Foul stools give warning always.

The healthy baby at one month old is often older than the delicate one six months old.

than the healthy yellow, inodorous, mushy one, should make the parents suspicious of coming trouble in these cases, and demand frequent weighing to show progress. An infant must increase over four to five ounces weekly to be safe for the future.

Age of the Baby.

Viewed in the light of successful feeding, a baby is as old as its digestive organs are healthy. A mother, asked the age of her infant, answered: "Three months. He was born six months since, but he did not thrive or increase in weight during the first three months; so I say he is only three months old." This may seem a strange answer, but practically it is the only correct one. If that mother had considered her infant three months old when he was that age and fed him accordingly, he would at six months be no older than at three months, and at three months old he was just born. That sounds like the proverbial Irish bull, but it carries the gist of sound sense.

If we forget that the condition of the digestive organs controls the diet received and consequent nutrition, then we will fail continually in correcting the dietetic errors of infancy. The injured and abused stomach of the infant is not able to digest the food at three, four or six months, that the healthy stomach of the new-born infant will receive comfortably and digest perfectly. This power leaves the healthy new-born infant ahead of the sickly damaged three to six months old one in the race

An infant must not nurse a mother suffering from a contagious disease, or during a long sickness.

of life, and it will probably keep ahead in weight also. Certainly it will be free from the damaging brands on the bones which will always be well stamped and easily visible on the bones of the sickly but older infant.

Nursing a Sick Mother.

Frequently the question arises during an acute sickness of the mother, "Can she nurse the baby?" This must be answered by the physician in charge, and requires very careful consideration. It is a most important subject, as the future health and even life of the child may depend on the correctness of his answer. The following subjects must be considered from the mother's side.

1. Is the disease transmissible?

If so, she cannot nurse the child. This is nearly always imperative.

2. Will her sickness last long?

If so, her diet must be provided during the sickness so as not to damage the health, strength, and growth of the child; or, it must be weaned.

3. What effect has the sickness on the milk secretion?

Short attacks of sickness in vigorous mothers, such as tonsilitis, quinsy, indigestion, diarrhea, etc., may reduce the supply of milk for a few days, but not materially damage the quality of it. Such cases may continue nursing and, if needed, have the child also fed diluted cream; but severe attacks of sickness, such as occur in pneumonia, pleurisy, nephritis, etc., contra-indicate nursing. All contagious diseases prohibit nursing entirely, also all forms of sickness that in the least endanger the life of the mother.

To retain the milk secretion, keep the milk glands busy by drawing the milk regularly.

4. What medicines are needed in treating the mother?

Very few diseases, except the short, self-limiting ones which can be treated almost entirely without medicines, are medicinally safe for the child. Nearly all medicines show their influence through the milk secretion, and the physician must carefully estimate the safest course for the child, whether that be through the mother's milk and necessary medicinal treatment, or through an entirely new dietary.

5. Will the milk secretion continue through the sickness?

This is always an unknown quantity, but the first few days of sickness will settle this question definitely, as mothers generally continue secreting if the milk does not stop during the first three or four days of sickness.

6. When will the mother be able to nurse again successfully?

This is also a subject involved in doubt. Mothers who desire to nurse again must continue drawing the milk twice or three times daily during sickness. When this is done successfully, both the amount and quality of the milk will follow in direct ratio with the convalescence. The time before full supply returns is individual; with some earlier than others, according to their milk secreting power and general vigor.

Mothers who are seriously sick after six months' nursing generally lose the milk secretion entirely.

From the child's side of this question, we must consider the following features:

1. What is the child's age?

If six months or over, little anxiety need be felt about

The infant should not nurse a mother who is taking medicine.

a healthy child, except during hot weather, as it may be weaned, or can be nursed partly and fed from the bottle or spoon for the balance of the required nourishment.

Children under six months old should be mostly fed on cream or milk, properly diluted to their digestive capacity, as they are too young for safe weaning, and can easily be sickened by improper quality or quantity of food. These children should always be partly nursed, if possible.

All babies under four months old should, if possible, have a wet nurse, otherwise the greatest care should be given to the details of preparing their diluted cream food, and only the smallest amount given daily to meet the necessities of nourishment. Nothing else can safely be allowed at this age, and in some even this will disturb the stomach.

2. From what sickness, if any, has the child suffered?

Where there has been previous derangement of the stomach or bowels, especially if repeated, sickness of the mother becomes a more serious matter, unless previous sickness has been due to bad quality of the mother's milk. Also where the child inherits a poor diathesis or constitution, we find increased danger. Changes, except to a wet nurse, are dangerous in such cases always. Where a wet nurse cannot be obtained, very dilute cream mixture is the only other food safe or allowable.

3. What is the child's present health?

Any sickness, unless such as is the result of the mother's milk, adds very greatly to the dangers entailed by sickness of the mother. Occasionally a forced weaning is beneficial, as when the child is not thriving on the

After six months old, the infant should always be weaned if the mother is seriously sick.

present nourishment. Each sickness of the child must be considered in detail, and action taken accordingly.

4. If not nursed, how will it be fed?

Here is a most important question and involves all the previous conditions, more or less. Everything bearing upon the case must receive careful attention, especially where a wet nurse cannot be obtained. The younger the child, the greater is the importance of this question, generally. These details are considered on pages 110 and 163.

5. Can you obtain a wet nurse for it?

As will have been observed by the answers to former questions, a wet nurse is frequently desirable, and imperatively needed at times, especially in the very young. Where a permanent one cannot be obtained at once, temporary ones or nursings should, in extremely young or delicate children, be hired or borrowed till the regular wet nurse is secured or the mother recovers. I have had three nursing women lending their united efforts to tide a delicate child over the acute sickness of the mother. In such cases, it is desirable to have the milk from a successful nursing mother, but in extreme cases, I would take any healthy human milk in preference to hand feeding.

6. Does the mother's sickness occur during the hot weather or immediately prior thereto?

This is a most important feature, and has a direct bearing on all ages. Warm weather greatly increases the dangers of changing dietary. As this is the season in which poisonous elements are developed in the milk, and also the season of weakest digestion, greater difficulty appears in hand feeding.

Children with delicate stomachs should always be weaned when the mother becomes sick.

Always hesitate to wean in hot weather.

These facts strongly argue for a continuance of human milk, especially in the delicate and young. Where enough good human milk cannot be obtained, the child should always be allowed the full amount available, and fed the balance on humanized cream mixture. This mixed diet is better than complete weaning, just in proportion as it contains more good human milk.

7. If hand fed, will the child nurse again?

Here we must give an uncertain answer. If fed from a bottle and under six months old, it can probably be taught to nurse its mother again, especially if the rubber nipples are graded to the size of the mother's, and not used so long as to make them soft and too easily nursed. Thick rubber is best in these cases, as it keeps up some difficulty in artificial nursing. If a child be over eight months old, it cannot always be taught to nurse again. If a child of any age be separated for a week from the act of nursing, it has generally lost this instinctive power, and cannot nurse again. This argues against spoon feeding always in these cases.

8. Does the child's inheritance demand a wet nurse?

This question requires the careful study of the attending physician. Certain inherited diatheses are transmissible by birth, and aggravated by nursing. In such cases, the mother should not nurse any longer than is needed to keep the infant vigorous till the wet nurse is secured—one or two weeks. Tubercle and syphilis are the pronouncedly injurious inheritances. A nervous, anxious disposition in the mother may completely frustrate her nursing power, reducing the quantity and

If reducing the food does not correct the bad character of the stools, weaning should be considered.

A hand-fed infant under six months old can always be taught to take the breast again.

spoiling the quality of her milk. The other weaknesses of the mother's family can best be analyzed by the progress the infant makes weekly. When less than four ounces is gained weekly, the infant should always have a change of food.

The weekly weighing of the infant must never be omitted. Judging this important matter by all other ways is dangerous. Puny, delicate children and early death too frequently follow all efforts at deciding this question by the appearance of the child or the opinion of your friends. Just as well might we discard the thermometer in a dangerous fever as decide the infant's nutrition without the scales in these doubtful cases.

Teaching an Infant to Nurse the Breast Again.

Where the bottle has been used regularly enough so that the nursing power has not been lost, the child can be induced to take the breast again, by starving it for some hours till very hungry, and then holding it up continuously against the breast, so close that it cannot avoid feeling the nipple in its mouth. This should always be done by a nurse or attendant, as it will weary the mother too much to do it alone, and besides, she cannot always see clearly enough to hold the mouth over the nipple. Even though the child be rebellious, as the older ones are, it will, when held there continuously, involuntarily draw at intervals, and receiving some milk will generally continue nursing for some time.

In younger children and the new born, the dropping

Marasmus is the result of imperfect nutrition. Any child could become marasmic; it is usually fatal.

on the breast of sweetened water so it will trickle into the mouth will often be sufficient to start a hungry child nursing. Some children will when sleepy and in the dark, grasp the breast greedily. This process may be assisted by giving some sleeping potion to the little one, and thus numb the acuteness of the senses for one or two nursings.

Generally, children over five or six months will refuse to take a wet nurse till starved to it, or until she wears the mother's clothes or nurses in the dark. Any or all of these maneuvers may be adopted when necessary in these cases.

Unthrifty Children—Marasmus.

Unthrifty—that is another word for sick. It means the same thing, and is always a result. If a result, find the cause and you may have the cure, or see where you can secure it.

Unthrifty child means one who does not grow or show up to the usual standard of development. It may be due to inheritance, imperfect development of some of the internal organs, functional derangement of some organ, improper dietary, unsuitable hygiene, *tocology*—starvation, food deficient in some of the elements needed for perfect growth, gradual changes in tissue at some point, tuberculosis, or any cause which prevents the requisite additions in nutrition, or causes an unusual waste from the body, as in diarrhea.

These children are an intricate study and require the most careful attention of the physician to find the errors and correct them. They require regular weighing and

A wet nurse is the surest preventative against marasmus.

measuring, so that there is no doubt about their progress. By this means only can their slow progress receive that prompt attention needed for successful development.

Parents must always remember that the unthrifty child requires more blood of a better quality. This can only be obtained by securing a perfect appropriation of a greater amount of food. It may not, indeed it does not generally, mean more food; but it means converting a greater amount of good suitable food into blood. This may, and generally does, demand temporary assistance for the infant's digestive organs till the color of the skin improves, the weight becomes greater, and the flesh harder.

These unthrifty children are usually those nursed by a poor milk secreting mother, those nursed too long, and overfed or improperly fed, hand raised infants. In all these cases, the error occurs at the entrance of nutriment into the circulation, and should receive prompt attention to prevent irremediable damage to the infant's development.

When these children progress far in this unhealthy condition, there is always great doubt about their recovery. There is a point from which they cannot recover. These cases are suffering from *marasmus*—a condition in which they daily grow poorer and smaller till the end comes.

Bad Smelling Babies.

Aside from the unavoidable odors present at times with every infant, we find in some there are odors always present, not attributable to outside causes, uncleanliness, soiled diapers, etc.

Overfeeding and bad digestion make foul smelling babies. Some naturally smell strong. These have usually rough skins.

Decomposition of food inside the body, and of the secretions on the skin, cause the bad odors. Less food and yellow stools generally give the cure.

Some infants are born with this unpleasant odor, and others soon develop a continuously bad odor on their clothes through decomposition instead of digestion of their food, and the exhalation of resulting foul gases through their skin, lungs, and bowels.

Generally, it will be found that these foul babies become sweet and pleasant when their food is adjusted to their proper digestive capacity. Mostly all these are overfed, hand raised babies.

There are a few babies who smell badly on account of inheriting a heavy, greasy, or rough skin. The odor in these cases is due to the decomposition continually present on their unhealthy surfaces. Continual washing and cleansing are needed in these cases to preserve a dry, smooth condition. Many of them are also benefited by internal medication, such as will produce a more healthy general condition of the body. The greatest efforts should be made to overcome this truly unpleasant condition.

Externally, the addition of boracic acid, one teaspoonful to the pint of washing water, is generally beneficial to those having unpleasant skins.

Bathing the Infant.

The healthy child commences life with a bath, and continues this treatment regularly all through infancy, and with less frequency as it grows older. The temperature

Cleanliness is secondary to both heat and speed in bathing the new-born baby.

of the bath and the frequency of repetition are subjects for continual varieties of opinion. In the newly-born child, emerging from a constant temperature of 98½ degrees, it is reasonable to expect that any deviation from that heat would produce an appreciable effect on the child. This is a well-known fact. There is nothing so important as temperature at this time, and many children are injured by exposure in the first bath, due to coldness of the water used, the time wasted in bathing, or the coldness of the room in which it is done. It is much better to be solicitous about the heat than the cleanliness of the child. A second washing will perfect the cleaning, but a chilling may produce grave results. The bath should always be 98 to 100 degrees, renewing the water regularly.

Repetitions of bathing are the rule and necessity with these little ones. There is no law against this necessary operation when cleanliness demands it, so long as the skin is healthy and strong; but in many instances we find that it is overdone and the skin very much irritated, becoming red, angry, and raw. Whether this irritation is due to frequent wetting, friction in washing, or the use of soap, should be determined and the error corrected accordingly.

Generally, it becomes necessary in these cases to secure absolute dryness, smoothness of the surface, and lessened friction to these irritated surfaces to obtain a cure. This can be done by using sweet oil instead of water, and no soap, being sure to rub very lightly and not more than is absolutely necessary for cleanliness. This leaves a slight oily coating on the skin, which is a protection against moisture and facilitates the healing process.

Eruptions on an infant should always be oiled, but never washed.

Below 90 degrees is cold to the infant, and above 100 degrees is hot. Between these two points is warm and comfortable.

In addition, when needed for healing, some alkaline powder, such as magnesia, fuller's earth, or compound talcum may be freely applied at each dressing over the oil. If this is faithfully and judiciously done, there need be no scalding, abrasions or rash (commonly called "red gum"), and when these are present, the oil washing should be persevered in till a cure is obtained. No soap or water should be applied to these tender surfaces till the skin is perfectly healthy and natural. This often requires weeks.

Temperature of the Bath.

This is a subject requiring thought, and no law is applicable to all children, all ages, and all conditions. As the baby becomes older and as the weather becomes warmer, the bathing water may be used colder than 98 degrees F. in the perfectly healthy child. Also the time spent in the bath may be extended with benefit, but no child should be allowed to remain in the water more than five minutes under the most favorable circumstances. Daily repetitions of long baths are weakening to the child; but repetitions of short cooling baths are a tonic, and protection against sickness and overheating in very warm weather. Where they are made very short, they may be repeated frequently, and where they are applied simply as a cooling sponging, they may be used every few hours in hot weather with great advantage to the healthy child, and in very many conditions also to the sickly child.

Sudden plunging into the water, putting the infant's head under the water, using too cold water, all frighten the infant.

Fear of the Bath.

Many infants enjoy bathing; in fact, most of them will if properly applied, but there are some who dread it. This fear is caused generally by the heat or the coldness of the water, or by some accident, shock, or smarting while bathing. Sudden plunging of the infant into it or under the water will produce a shock and subsequent fear of a repetition. Some mothers have an idea of strengthening the child by using the water colder than is comfortable. This is founded on the thought that cold baths are strengthening and warm ones weakening; but this is not applicable to the delicate immature infant, who has no power of generating heat by activity or expressing its misery when too cold. The proper warm reaction is always needed after bathing in order to have it beneficial. Where the limbs remain cold afterward, or where blueness of the lips is present, the temperature has been too low or the bath too long. Either is injurious.

Testing the Water.

Care should be used in securing a proper temperature of the bath. While generally the hand will tell this clearly enough for a healthy child, it will not do so under all circumstances. If you grasp a hot cloth, iron or any hot substance in your hand for a few minutes and then place the open hand in water, you will realize how differently the palm and back of this hand report the temperature. This will show the necessity of having the hand at the ordinary temperature of the body, and not previously in either a hot or cold condition when thus testing the water for the

The comfortable temperature is the right one for the infantile bath. Long baths are injurious.

child. This is important, as thus you avoid the shock and consequent crying of the infant from wrong temperature. Where you are in doubt, use the thermometer. While the healthy temperature of all internal organs is about 98½ degrees, the surface or skin temperature is only from 93 to 95 degrees. It will be desirable to commence bathing between these two extremes, remembering that soon the water will fall below the lowest, and if there is much delay will require renewal of the heat.

Hot Baths vs. Cold Baths.

From what we have said, you can readily understand what is meant by a hot bath or a cold bath. If the surface temperature is 94 degrees, water warmer than this and up to the internal temperature, 98½ degrees, must be classed as a warm bath. If over the internal temperature, 98½ degrees, it should be classed as a hot bath; and if slightly below the surface temperature of 90 degrees, should be considered a cool bath, gradually becoming a cold bath with decreasing temperature. Do not forget that no matter what the commencing temperature may be, by evaporation all become cool or cold baths very rapidly.

The Bath in Sickness.

It is only within a few years that we have come to realize the value of the thermometer in sickness. When the writer studied medicine, 1860 to 1864, and for many years after, a fever thermometer was not known. Since we have this guide, we have been enabled to study intelligently the use of heat and cold as applied in a bath

Always use tepid, cool, cold or colder water every hour or two till rest and comfort are secured in fevers.

Always apply heat to the cold parts and cold to the hot parts. This regulates the circulation.

during sickness. Perhaps in no feature of treating sick children, except dietary, have greater advances been made than in the intelligent application of hot and cold water as therapeutic agents. Well do I remember how persistently the custom of applying hot water under any and all conditions of sickness was blindly and unintelligently followed at all seasons of the year. Twenty years ago, physicians were compelled to politely and meekly ask the parents or friends for the privilege of applying cold water to the feverish or burning child. Many times it was fearfully refused; but let him then suggest hot water, and an immediate rush was made, even on the hottest day in summer, to build a fire to boil the water. Never have I seen this refused, but all were willing, with a hot bath, to make the hot child hotter. Under these conditions we could only obtain our object by using lukewarm water and continuing the bath for considerable time. Thus, by evaporation, and not allowing the addition of more warm water, we obtained the temperature necessary for curative purposes. Even to-day, in the majority of cases, this gradual cooling temperature in bathing is most comfortable and suitable to the sick child. After the patient has once entered the water at a comfortable temperature of about 95 degrees, either cold or hot water can be steadily added till the bath is brought to the temperature needed. In this way all shock is avoided by first sudden contact. In cases of sickness this may be repeated every few hours with perfect safety when necessity demands it.

Always rub well when bathing. This keeps the blood moving.

Different Kinds of Baths.

The varieties in baths at present are mostly those of temperature. Cool or cold baths are used to lower the temperature in febrile diseases; hot baths are for the contrary, to elevate the temperature in the chilled or collapsed condition which occurs at the beginning of the sickness or during some serious advanced stage, where coldness of the extremities, trembling, blueness, or extreme whiteness are present. Where it is not possible to use the whole water bath, local cold or hot applications are substituted for them.

Cold Applications.

Local cold applications are made with ice or cold water. Ice must be used sparingly in contact with sick babies. If allowable in any case, it must be only for a few minutes or in small quantities, as it soon stops or limits the circulation in the part to which it is applied, and then its beneficial effects are largely lost. This can be seen in the whiteness of the part, soon following the contact of the ice. The idea in the cold application is the extraction of heat. Where the treatment is made for its local effect and not for a constitutional result, finely cracked ice rolled up in a towel or mixed with sawdust, may be applied advantageously; or it may be placed in a rubber bag, where it can be kept in position. In all these forms the ice soon melts and we have only a cold water application of low temperature. This is generally all the circulation will stand, for it is requisite that we have a free flow of blood in this part in order that the extra heat will be rapidly

Cold bathing gives the most effectual cooling. Frequent head bathing is generally all an infant requires.

and regularly carried by the circulation to the cooling applications and thus dispersed.

Cold applications of a low temperature are readily made with cloths of several thicknesses and the size required to cover the part treated. One cloth is applied to a large lump of ice till cold and then placed on the patient, while another cloth is kept on the ice ready to change as soon as needed. By thus alternating the cloths, continued cold applications of a soft, light kind are very successfully obtained for limited surfaces.

The most successful way of making cooling applications for the general constitutional effect is by local bathing of the head, neck, and shoulders, or any large part, with cold water frequently changed. As the necessity for this treatment comes mostly in the hot season, it is not an unpleasant occupation. This form of bathing must be carried out till relief is obtained, and as it is commonly required in very young children, only a limited portion of the body, the head most generally, is enough to give good results. This cooling bath may continue for many hours, and is best done with a soft cotton cloth. This gives that close contact with the skin which sponge and wool do not. In this form a large basin of water with a small lump of ice in it, or the water frequently changed to keep it cool, is required for the effect. I find it necessary to always specify this, as the tendency is to use a small amount of water and not change it frequently. This slow, steady, and noiseless moving of the cloth over the head conduces to rest by its soothing and cooling influence, and by the rapid evaporation. Little children who are too feverish to

Use a large basin of water and change it every half hour or less for successful cooling in hot infants.

Head bathing is more valuable in infants than in adults, as the proportion of head to body is ten times greater than in the adult.

sleep will soon be soothed into slumber by this method, and many of them will continue sleeping only while these cooling applications are continued.

Cold cloths, as generally applied, are a failure and do not obtain the object in view. They require frequent changing, and to be thick enough to extract heat. A cloth that is allowed to become warm before removal does little, if any, good. The attendant in this form of treatment too often tries to do something else at the same time. She thus forgets to change the cooling cloth frequently. She cannot even talk while doing this work, as that diverts her attention and causes neglect. As the head is the part most commonly in danger in high temperatures, it is the part that must be bathed, and experience shows that the large circulation of blood there will soon exhaust all the superabundant heat in the body in ordinary cases, if proper bathing is applied to it and continued long enough. This may and does often demand many hours of continuous work. It may be continued as long as coldness of the extreme points—ears, nose, fingers, and toes—does not indicate reduced circulation in them.

Rubbing in the Cold Bath.

Friction, or rubbing of the surface while in the cold bath or while making cold applications, is always necessary. The tendency is to stagnation or slowing of the blood current from contact with cold. As the blood is the

agent which travels around carrying the heat to different parts, it becomes necessary always to facilitate its movements when reducing its temperature. This is done by constant rubbing of the surface while in contact with the cold water. This rubbing should be moderately brisk and with some force. This also moves the water and constantly brings a fresh, cool contact with the skin. All parts in contact with the cold water require this constant rubbing, and it should be fairly brisk and heavy to be successful. If coldness continues in the extremities after the bath, or collapse, blueness of the lips, and chilly feelings are complained of, a little whisky may be given, and hot applications made to the feet, with continued friction and warm coverings. These must be discontinued when healthy and comfortable reactionary warmth has been established.

The Bed Bath.

Where it is inconvenient or impossible to remove the patient from bed for a bath, or where there is insufficient help to lift him, a bath may be given in the bed by using a rubber sheet under the patient, and having it large enough to have the edges and ends rise over pillows or rolls all around the patient. In this way you construct a bath-tub in the bed, and the water can be poured around the patient till enough is obtained for this purpose. By keeping the rubber cloth under the sheet, it is always in position, and one attendant can, in an emergency, give the bath alone. This is suitable for very weak babies.

The Ice Bath.

Where no means of bathing are at hand, and a cooling treatment is demanded, the patient may be rubbed or

Never apply ice or ice water to an infant. Water at 60 degrees F. is cold enough usually if applied freely.

Woolen goods are the best protection to the young infant. White is the best color.

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ironed slowly with a lump of ice, till the thermometer indicates a sufficient reduction of temperature. This way of applying cold furnishes also the necessary friction or rubbing to the surface.

The Cold Pack.

This application is made during the early stages of an acute sickness, while the patient is yet vigorous. It might be described as painless bleeding, because its efficacy depends largely on depletion. Here the serum of the blood is drawn through the skin in the profuse perspiration which follows soon after the warm reaction is established. The patient is rolled in a wet cotton or linen sheet, which is well soaked with cold water; or two sheets, and then a flannel blanket may also be used where the high temperature of the patient demands much cooling. In this patient, the temperature is above the perspiring point, and the cold sheets rapidly extract the superfluous heat. Over the wet sheets, abundance of blankets and coverings are spread to cause warmth and profuse perspiration as soon as the temperature falls to the perspiring point. This perspiring stage may be continued for an hour or two, or till relief is obtained. The patient may then have a change of sheets and underclothing, or the outside coverings of the bed may be reduced gradually, and the underclothes allowed to dry on the patient. Where the patient falls asleep, the latter is perhaps preferable, leaving the changing of clothes till they are dry, when there is less danger of the chilling effect.

Ice checks the current of blood and then does not cool so rapidly as cold water.

The Steam Bath.

This aims at reducing temperature by evaporation, and is applicable to nervous patients who dread the cold contact of the pack. It is a very successful, mild, and pleasant way of treating all moderate cases, and will reach probably two-thirds of the acute sicknesses requiring cooling treatment. It presents no mental shock to the sensitive patient, and is always accepted without any demur. The materials needed are two to six hot irons or bricks, or bottles filled with hot water and well corked. The latter often fail through the corks leaking or coming out entirely and wetting the bed. A towel soaked in warm water and wrung as dry as possible, is then wrapped around each hot iron, brick, or bottle. These are placed alongside the patient from feet to shoulders, and plenty of covering over all to retain the steam around the patient. In a few minutes this steam moistens, softens and warms the surface so that the perspiring condition is established, and can be continued thus until the desired result is obtained.

The Douche or Spray Bath.

This form of bathing is now mostly used for local affections, such as strained ankles and severe bruises. It can be used also for constitutional effects, but the labor and exposure of patient are too great for its general adoption. It is most commonly applied with a gardener's sprinkling can, and requires a rubber cloth or large vessel underneath to again collect the water. This latter feature is a strong objection to this form of bathing, but for arms and feet it is still used considerably. The indications

for continuance and repetition are the comfortable sensations produced by the water in the affected part.

The Mustard Bath.

This is made by the addition of quarter to half a pound of mustard to five gallons of hot water. The object is, of course, to act as a powerful and large counter-irritant to the surface in extreme cases of collapse or internal congestions, while the surface is pallid or cold and blue. The water must always be retained hot, over 105 degrees, and the patient be kept immersed with frictions till the surface shows the bright coloration of mustard irritation, else it is no better than a hot bath alone. Additional hot water must be regularly added to retain the high temperature.

Medicated Baths.

These were very popular in the sick-room in years gone by. They were used for their supposed curative effect principally in skin and rheumatic affections. At the present time they receive little attention except at the mineral springs, where they are the principal treatment, combined with heat and massage. Their success is largely dependent upon their skillful adjustment to the disease, age, and strength of the patient. Coupled with this, of course, must be the dietetic and mental treatment of the patient. These baths are mostly now confined to rheumatic, and syphilitic cases of the chronic form. Rarely are they applicable to the acute forms of these diseases. While formerly, skin diseases were largely treated this way, at the present time little attention is given it. About the only relic of this medicated bath now in use is the addition of alcohol or salt to the water used in bathing. The utility of this is somewhat

Cooling baths are invaluable in all feverish conditions. They should be repeated often enough to give quiet sleep.

doubtful, and I have often thought the benefit was more mental than physical. As there are no contra-indications to their use, where consulted I leave them optional. Formerly, milk, whisky, and sulphur baths were very common and popular. The sulphur bath is the foundation of the mineral bath, sulphur being the principal constituent of the water. Here it is in combination with other ingredients, and gives the strong odor and taste to the water.

Plunge Bath.

As the name implies, this is dipping the patient suddenly in cold or hot water, as demanded, and immediately removing him, repeating the operation as directed. This bath is applicable only where the nervous sensations have become so benumbed and unresponsive that heroic measures are necessary to recall their natural sensitiveness. It is applicable to convulsions, some conditions of lung trouble, opium poisoning, in the moribund new-born child, and some other conditions, such as chills, where a profound shock is demanded. To produce the desired effect, the temperature of the water must be far from the natural 95 to 98 degrees of health, as hot as can be borne by the hand, or as cold as you can get it. In the repeated sudden contact with the whole surface nerves lies the effect desired. The hot and cold plunge may be alternated in extreme cases.

Clothing the Child.

As in all other features while nursing children, care, thought, and watchfulness must be continually exercised regarding the clothing of infants and young children.

Woolen fibers are round and curved, holding warm air in their meshes; cotton and linen are flat and straight.

Here the quality of the goods and color thereof; the age, size, and health of the child; the house, weather, and season of the year, must all be considered carefully when selecting the clothing.

Clothing Fibers.

Two features should always be considered in determining the character of the clothes—the fiber and the color. By fiber, we refer to the original stock from which the texture is made. These fibers are wool, cotton, linen, and silk. The woolen fiber is round and more or less curved, so that cloth made from it never becomes flat and compressed, but always touches the body lightly and holds a quantity of immovable air in its meshes. In this way, woolen goods become poor conductors of heat or cold, not carrying the heat out rapidly from the body, nor allowing the cold to easily reach the surface.

Cotton and linen fibers are flat and straight, fitting closely together and making a solid mass when woven into cloth. Thus they become good conductors of heat and cold, and are suitable where light, smooth, cool textures are desired. They are particularly applicable where the surface is tender and easily irritated, as the flat fiber of its structure gives little friction in well-made goods.

Silk, being made of very fine, soft fiber, is also particularly suited for underclothing. While it does not make into such warm textures as wool, yet it more nearly assimilates to it in character, and will frequently take its place, particularly where smoothness and warmth are both demanded. It has the smoothness of cotton or

Silk is next to wool as an infant's clothes fiber when heat is desired.

linen when properly made, and makes a most suitable underclothing. The first cost will always prevent its general use, and when thin, light clothes are needed, the cotton and linen textures take precedence over it.

Color of Clothing.

This subject requires attention under many circumstances. A common idea prevails that colored goods are warmer than white. This may be denied or indorsed, according to the position in which the colors are worn. Actual experiment shows that dark colors have greater absorptive powers for heat when exposed to the sun's rays than have white goods; consequently, this question must be considered from the position the colors occupy. In underclothing, where the sun is shut out, there can be no improvement in the heating power of a fiber by having colors which are themselves good conductors of heat and cold attached to them. On the contrary, the color must be a damage to all underclothing. The natural inference to be drawn from this is, that for summer goods and underclothing, the absence of color is an advantage. Under the microscope it is found that colors are attached on the outside of the fibers in the form of fine crystals. These crystals, when exposed to the sun, act like the window glass, offering so many surfaces for attracting, increasing, and intensifying this heat, and thus explain the increased warmth of dark garments in sunny weather.

Amount of Clothes.

Age of the child must always be considered in dressing it. The new-born baby, accustomed to 98½ degrees, certainly cannot be dressed as the child a year old, who

Colors do not improve the quality of any fibre.

Delicate children and newly-born infants require abundance of clothes.

has become inured to varying temperatures from 65 to 85 degrees or more. Here the necessity of a high temperature demands such clothes and amounts of them as will allow little escape of the natural heat; and while the smooth, soft cotton or linen textures are necessary next the delicate skin, abundance of woolen covering must be added over them to maintain the equable heat necessary at this time. These woolen goods should be new and soft, for when old, worn, and thickened by wear and washing, they are too hard and solid to be good heat retainers. While washing improves the softness and color of the vegetable fiber, it does the opposite with the animal fibers, wool and silk.

Care, watchfulness, and judgment must be used in determining the amount of these warm clothes which can be successfully continued. As no rule is applicable both to the strong, vigorous babe of ten pounds, and the weak, immature one of six, so also there can be no rule applicable to the cold weather of winter and the hot days of summer. A healthy child rests well when comfortable. Either too little or too much clothing make it uncomfortable. Instead of sleeping quietly if properly fed, it will be crying and fretting at short intervals, or even continuously in extremely cold or hot conditions. The condition of the surface and extremities helps to indicate an error on this point. Where too much heat is maintained, perspiration, which is unnatural in young infants, is caused, and soon a fine nettle rash, somewhat resembling scarlatina, is produced. This rash will increase or decrease as the heat is raised or lowered, and may

Too much clothes cause perspiration and nettle rash. Clothes and exercise make heat. For the infant use more clothes; for the active, running child, more exercise.

soon become a raw condition, which effectually prevents rest if the clothes are not lessened. On the contrary, where not enough clothing is used, coldness of the extremities, and even blueness in some, will point to this error and demand more covering.

With increasing age, strength, and weight, the infant acquires a greater heat manufacturing power, and a correspondingly smaller amount of clothes is needed; but it must be remembered, that until the child is able to generate heat by activity, a great amount of covering is needed.

While this gradual progress from a large to a small amount of clothes is the rule in healthy children, it forms no precedent in delicate ones. Many a delicate child of a year old will require as deep covering as the healthy new-born infant. Here the enfeebled digestive power, poor quality of blood, or unfortunate diathesis, demand the assistance of heat retaining garments to supplement his poor heat generating power.

The necessity of some exposure daily in the open air for healthy and vigorous growth demands the use of the baby carriage. It is unnecessary to say that increased or decreased clothing will be needed according as your home is warmer or cooler than the outside atmosphere. On this point continuous care, thought, and reason must be exercised. One simple feature must be observed always, else the child returns to the house injured by the exposure rather than benefited. This is the natural temperature. All cold winds must be avoided by position and impervious protective coverings. Remember, the cold air

Heat kills twenty infants for every one lost by the effects of cold.

enters necessarily the nose, throat, and lungs. While the clothes can and will protect all other parts, avoidance of drafts, winds, and currents in addition are demanded to protect the air passages. Thus it is always necessary to keep the infant's head, and especially the face, away from the wind.

Exposure in warm weather demands attention to protect the child from intense heat. Here we have an exposure which sacrifices many more infants than do the cold winds of winter. While from the latter we have many sicknesses of ears, throat, and nose, and some deaths also, from the former we have many deaths as well as sicknesses. The tissues and organs affected by cold are not so vital and dangerous as are the ones affected by heat. The brain and nervous system are immature, large, and easily disturbed by increased heat. They are also less amenable to treatment than the air passages, and their disturbance more dangerous to life. Great precautions must be continually observed to avoid this intensity of heat, particularly should all direct exposure of the head to the sun's rays be avoided. While it is necessary to have this protection, it is important that covering should not be applied directly to the head that will in itself retain the heat. Evaporation in hot weather is a most important means of cooling and reducing temperature.

As in feverish conditions we frequently find the applications of cold to the head sufficient to reduce the general temperature, so in summer weather we commonly find evaporation from an uncovered yet shaded head an immense assistance in maintaining an equable and comfortable condition of the whole body, and also a great

Change the clothes according to the weather, not according to the month or hour of the day.

protection or assistance in avoiding many sicknesses. Certainly whatever covering is worn in hot weather on the infant's head must be of such shape and character as will not impede a free evaporation of all moisture.

Frequent changes of clothing in the summer season are an absolute necessity. Many are deterred from changing to lighter garments with the approaching warm weather or an unexpected warm spell, lest they may have to return to the heavier again. This is a mistake. What difference is it, whether you damage a child by heat in May or in August? The result is the same. Changes must be made according to the heat, not according to the month or preconceived ideas of seasons. Not only should the changes be made according to the day, but also according to the different hours of the day. In our changeable climate we frequently have the atmospheres of spring and summer, or summer and fall, in the same day. The amount of clothing must be adapted to the changes of the day and not the day to the clothing. The old-fashioned idea of hardening the child by exposure, must not be abused by applying it to the inactive infant. While it may be properly said to the child of five or six years, "Run and play," when complaining of cold, this cannot be said to the infant unable to run. Here heat must be obtained by clothing only, and changes of it made to meet variations of temperature.

In the winter season there is not the necessity for frequent changes of clothes that exists in summer. The low temperature demands more regular clothing, and the atmospheric changes are not so frequent. As we then maintain artificially an equable inside heat in our houses,

Mothers should always keep infants out of wind currents, and also out of the hot sun in summer time.

we have better control of it than we have during the heated summer season. Thus, about the same amount of clothes can be worn in the house all the time, and an increase made when going out.

Night Clothes, or Bed Clothing.

At night before retiring, and also during sickness, it becomes necessary to dress children so as to avoid exposure and consequent sickness. Nearly all children become too warm and restless at night, and if possible kick off the clothes. All mothers testify to this habit in their little ones. During the unconsciousness of sleep they do not recognize the uncomfortable sensations of cold. Parents at first are horrified to find how cold the child becomes, and look for evidence of sickness to follow this exposure. Strange as it may seem, there appears to be an immunity against disease from the effects of cold produced during these sleeping hours, as we are seldom able to trace the sickness to this cause. Many mothers protect their children from this by dressing them at bedtime in union garments, or long night-gowns which project beyond the feet and close at the lower end with a draw string. Both effectually prevent complete exposure.

Where children are confined by sickness in rooms not properly heated in winter, it becomes necessary to put additional clothing over the shoulders, as during the waking hours it is impossible to keep the arms and shoulders covered. Even in well-heated houses, extra covering on those parts is desirable while in bed, to protect the child from rheumatism, throat and lung complications. All children confined to bed should have a complete or

Keep the infant's head uncovered when out of the house in hot weather.

partial change of clothing, morning and evening. There are few sicknesses where this cannot be done, and the doing of it rests the little one by giving a change of sensations, position, and pressure that tends to better sleep and more comfort.

The Abdominal Bandage.

This feature in the infant's clothing is more esteemed than all other parts. In the minds of some mothers it is considered as almost sacred, and the removal of it before the child is two years old not to be thought of. It matters not what the season, heat, or sickness may be, they think this must be retained in some form or to some extent. Many times it consists of little more than a strip of cotton or wool well wrinkled up into a string under the child's arms. This, of course, is useless.

The bandage has two proper objects: First, the holding of the umbilical cord and dressings of the new-born infant till separation and healing have been accomplished; second, the supporting or holding of a pad over the navel, in order to prevent a rupture extruding at that point, when in some children a complete closure of this opening has not been obtained. Beyond these two necessities no intelligent claims are made for it except for warmth. As the first umbilical necessity has generally passed away in four weeks, and the second navel necessity only occasionally occurs, there should be no use for this part of the clothing at all other times except for warmth or protection against exposure; consequently the mystery connected with it should be removed, and the clothing of the abdomen considered in the same way as

The abdominal bandage protects the navel till healed perfectly. It is no benefit otherwise in hot weather.

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are all other parts of the body. Leaving out those two physical features which are only temporary, the abdominal cavity is as well protected and covered for its use and intentions as is any other part of the body.

Nature shows no evidence of errors, either in omission or commission, which should entail upon us the necessity of trying to supplement her work with a bandage which, as applied usually after the first month or two, is only a farce, and which has nothing to recommend or excuse it except traditional superstition. Many times does it become a great annoyance by its wrinkled bulk at one point, or a source of irritation in warm weather where the object of dressing is to obtain coolness at all other points; yet the mother religiously replaces this unreasonable appliance under any and all clothing and in all seasons of the year. This should not be so; the abdomen, when healthy, requires only the same care as do other parts of the body, and the wearing of the bandage becomes in hot weather a source of danger and annoyance.

Beds and Covering.

The bed which the new-born infant occupies is subject to changes corresponding with those occurring in the child as it becomes older. The basket or cradle which in downy warmth is suited to, and requisite for, the commencement of life, gradually becomes too warm and requires a constant reduction of clothing with increasing age and continuous good health. Few there are who do not cover the child warmly enough, and if they err, surely do it on the side of too much heat. This acts by

Put the feverish child on a cool bed; avoid the deep cot in sickness and in summer.

producing a red rash on the skin when overdone, and also disturbs the child's sleep. Less heat is here needed.

In different houses the same results are not obtainable from the same treatment, as different temperatures are maintained generally by other people. Also, the inside temperature of houses is variously affected by the sun and winds, so that no fixed rules can be laid down about the amounts of bed covering or the kinds of beds to use. Common sense and ingenuity must be so exercised that the beds are not too warm in summer or too cold in winter. The form of cradle or cot used in the different seasons should be somewhat varied, if convenient, so as to be warmer or cooler as desired. This also applies to the mattress, which greatly contributes to the heat; and where, as in the very young child, a feather pillow is also added to the mattress, especial judgment must be exercised in modifying this part by using hair or wool in the warmer seasons.

Where a change of cradle or cot is not convenient, the present one can be modified when of open spindle work by lining it for winter and using it open in summer. Where the sides are solid woodwork a circulation of air can be obtained with its cooling influence in summer, by building up the mattress with other clothing till the child sleeps largely above the wooden sides. These matters are important, as the comfort of the child, who spends the most of its time in its cradle or cot, is one of its best guarantees against sickness, and a great aid in its successful development.

As the child becomes older and shows a disposition to rebel against excessive covering by kicking it off when

Change the infant's position frequently, and thus avoid deformities.

asleep or restless, the amount should be reduced. But some children, indeed many of them, will always do this, regardless of the amount, and it becomes necessary to fasten the covers with safety-pins to the mattress on all four corners. This allows the child to turn or kick without becoming uncovered.

In severe sicknesses, with high temperatures, also in injuries, such as fractures, a firm mattress must be used for the child to lie on, so that it will not sink down into the bedding, but lie upon it. In these cases also no springs should be used. Particularly is this needed in injuries, to secure smoothness of surface so that positions of injured limbs can be maintained even while moving the patient to a more comfortable or cooler part of the bed.

Frequently we find children retain the same small quarters as they grow older, till feet and head touch opposite ends of the cot. This is wrong, and should always be avoided, giving plenty of room for the child to exercise by turning over when old enough to do this. Prior to this, care should be exercised by the attendant to move the child's position regularly, and to turn it over after a couple of hours. This is particularly desirable in the very young child, as we have frequent deformities of the head produced by allowing the infant to lie continually in one position. The bones are very soft and easily compressible into wrong shape by one continuous position.

A change in the position of the cradle in a room is desirable regularly, as this assists in giving the child different air, heat, light, and also position. While these matters are important during health, they are impera-

Cotton and linen are good conductors of heat and cold. They are not suited for infants or cold weather.

tively needed in weak, delicate, and sick children. The utmost comfort in all things surrounding, and especially in contact with the sick child, is demanded for success in handling them.

Undue nervousness and timidity are frequently shown by placing the child in the most uncomfortable part of the room to avoid any draft of air. This is commonly a part that adults would not seek in that season for themselves, but they think it the most suitable to the baby. This is frequently wrong, and in doing it, the child is commonly robbed of that coolness and freshness of air necessary for its growth when well, or its recovery when sick. By all means, make the child as comfortable as possible by not overdoing or underdoing those things needed for its comfortable rest and consequent successful development. Do not put the infant to rest in cramped quarters at any part of its existence, but particularly avoid this during sickness. Give the little one a chance to recover.

Regular Examinations of the Infant by the Physician.

We are all the followers of customs and habits, and rarely change from our ancestral practices without some educating factor leading us. In the employing or calling of a physician, it has become the fixed habit to wait till the parents or friends see unmistakable sickness in the infant before seeking his advice and assistance. This is right, and it may also be wrong—wrong of the most serious character. It is too frequently the latter.

Prudence, fear of expense, or the overriding opinions

The diet, growth, and development of the infant should be guided by the physician.

Proper diet and nutrition of the infant avoid errors and dangers in future years.

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of friends (differing in opinion themselves) continually keep parents from referring important subjects, such as diet, growth, teeth, development, weight, color, and activity, to the physician. The consequence is that he finds the resulting errors continually facing him in the acute sickness of childhood, months or even years after. How often does the intelligent physician see these loom up as the great barrier to the child's recovery; how often does he see these errors complicate the sickness, increase its severity, and delay the recovery; how often does he see the child damaged and made a prey to forms of sickness which it should entirely escape; how often does he see the slight inherited weaknesses made the great burden of future debility; and how often are the parents humiliated when they realize how different the infant might have been, if they had only referred these subjects to their family physician in infancy. Much better would it have been to refer all these matters to the physician before the occurrence of errors, and thus secure that guidance and protection which every important matter demands. Oh, the stubbornness and ignorance of habit! How difficult it is for us to change or see things as experience shows them.

Parents should hold their physician responsible for the growth and development of their children, not their friends, sisters, aunts, mothers, and grandmothers. Are we progressing in all things except the proper care and development of our children, that we still relegate this subject to the habits of the barbaric era, where things are

No child is safe but the one who rests well at night, plays all day, and gains five to eight ounces in weight weekly.

done without reason, and superstition and empiricism reign too often?

Bear in mind that physicians are progressing in this as in all professional subjects, and their souls are harrowed continually by the damaging results of ignorance, which their professional eyes are compelled to witness daily among their little patients.

Remember the physician does know how, and will help you out of the darkness of infantile troubles if you will ask his aid early enough. To secure this requires regular examinations of the infant every few weeks, and it may be done oftener when any error demands it.

No child is safe who is not happy and comfortable, who does not sleep regularly, who has not a regular appetite, who does not gain in weight regularly and rapidly, who has not *regular*, *well-digested stools* of *proper color* and *odor*; and who does not play continually while awake.

$19.66 for the Best, $216.66 for the Worst.

Below we present a comparative statement of the cost of raising nursed and hand-fed babies as commonly done.

Ordinary Cost of Twelve Nursed Children, One Year Old.

Three were nursed seven months.
Two were nursed eight months.
Two were nursed nine months.
Three were nursed ten months.
One was nursed eleven months.
One was nursed twelve months.

Of these three nursed seven months, two nursed eight months, and two nursed nine months; four suffered from

The healthiest babies are the cheapest. Delicate babies and sickly culls cost the most money.

attacks of acute indigestion, fever, and diarrhea, from injudicious weaning. These sicknesses lasted from ten to fourteen days.

The total expenses of these twelve children from date of weaning averaged as follows:

Four doctors and medicine ($20.00 each),	$ 80.00
One hundred and fifty-six weeks home diet, from weaning till one year old ($1.00 per week),	156.00
	$236.00

Or, $19.66 per baby for the first year.

Ordinary Cost of Twelve Hand-Fed Children at One Year Old.

Of these:

One died at three weeks.

One died at five weeks.

One died at three months.

One died at six months.

Of the remaining eight, six were sick from a month to seven weeks, principally during hot weather.

The expenses are about as follows:

Four funerals ($30.00 each),	$120.00
Ten doctors' bills ($20.00 each),	200.00
Ten drug bills ($7.50 each),	75.00
Four hundred and sixty-two weeks of patent foods ($1.50 per week),	693.00
Forty weeks of trained nurse ($15.00 per week),	600.00
Patent medicines,	45.00
	$1,733.00

Or, $216.66 per child for first year.

A cautious, prudent mother feeds her infant only such food as is natural or prepared in her own kitchen.

A sensible mother knows exactly the character of the food she gives her baby every day.

The above estimates are about as near the present facts as the writer's thirty-five years' experience among sick children can place them. They show that we are paying two prices for one-year-old babies:

For healthy, well developed, nursed babies, $19.66 each.

For a mixed lot of eight hand-fed ones—all that lived out of the twelve, three fairly developed, three indifferent ones, and two ill-shaped, sickly culls—$216.66 each.

The practical business man will be struck with the fact that in raising our children, we reverse all the laws of business and common sense applicable to all other transactions in life—*for the poorest goods and the culls we pay over ten times the amount we pay for the choicest stock.*

To some this will seem incredible, but the above are the facts, which any experienced children's physician will endorse. The physician who will doubt these facts should give his attention to children's diseases for a few years. He will then be convinced that these figures do not fully represent the present lamentable infantile situation.

The thoughtful parent will ask, Why is this the present condition of civilization? Why are we not more advanced on this vital question? The answer is plain,—inherited ideas, meddling friends, ignorance of the subject, bad examples, faith in the unknown food, newspaper education, trusting to the judgment of others, patent prepared foods, thoughtless and injudicious changes in foods.

Manufacturers make foods for their own benefit, not for the infant's benefit.

The cheap home-made foods are superior to the dearest foreign made ones.

Here, again, is an illustration of charging the foolish and sparing the shrewd. Here we find the shrewd citizen showing his good judgment again. He knows nothing about raising babies, but he knows a certain physician who makes a specialty of this subject. As for a surgical difficulty he selects a good surgeon, so for an infantile difficulty he selects a well-informed physician, and hands the subject over to him. His business training has long since convinced him that experience and specialism give the best results in all things. In this way he avoids all the mistakes and experiments, and secures for his infant the most suitable diet, care, and attention from the start. What is the result? At a year old he is delighted with a strong, symmetrical, well-developed, happy baby—all for the small sum of $19.66.

The foolish man is guided by the advice of friends and patent food makers, and carefully avoids the skillful physician. After a year's worry, anxiety, and unceasing labor, he views the result—a fairly developed or an indifferent baby; a sickly cull or a spot in the cemetery, at a cost of $216.66.

The thoughtful parents realize that in hand feeding their infants they must follow Nature's laws. This means that they must use what Nature has supplied and as she has supplied it, merely changing the proportions of the food to suit the infant's digestive development and necessities. When they reach this decision, they have also decided not to pay the patent food man $1.25 per pound for starchy foods when they can make better in their

A healthy baby is a happy baby. A cross baby is an improperly fed one.

kitchens for five cents a pound. Nor to pay fifty cents to a dollar for dried, cheesy milk, which is not half as good as they buy daily for six or eight cents a quart from a good milkman.

Having reached this common sense decision, they ask some reliable physician, how they can do this? He very soon shows these parents that they must feed pure, fresh cow's milk properly changed or humanized to suit the infant's digestion and necessities, and add well prepared cereals very gradually.

Cow's milk is made for a running animal, not for a quiescent creature like the baby. It contains too much running power for the infant, and this must be taken out; in other words, it contains too much cheese. This is the proteid, or running power, which is not needed in baby food, and when left in gives colic, cramps, and green stools. The whole secret of successful baby feeding is to reduce this part of cow's milk properly, and add enough sugar for good development. When this is done carefully, from the beginning of the infant's life, or from the day of weaning, these sensible parents buy their strong, symmetrical, well-developed babies for even less than $19.66. All they require to pay for is an occasional visit of their physician to inspect their progress, tell them when and how to increase the strength of the milk, and when to add in the well-boiled starchy or cereal food—oatmeal or rice.

CHAPTER X.

FACTS CONCERNING THE BABY.

Two Classes of Babies.

All children make two classes, the healthy and the delicate. Bad feeding will make the healthy ones become delicate.

All children, and even humanity, may be divided into two classes—the vigorous, and the delicate. By poor care the vigorous become delicate, and by good care the delicate may become vigorous. Our duties are thus diverse, but have always the same object in view—to keep the vigorous healthy, and to secure good health for the delicate. Too frequently is the necessity for the proper care of the healthy overlooked until damage follows, which a little wise counsel at the proper time would have avoided.

For this the mother or father are not always responsible on account of inexperience. Might not their physician have assumed the possibility of such mistakes and advised them accordingly, so that proper directions in dietary would have been sought at the correct time, and the parents not left to the kind, yet unkind and deluded, traditionary, nonsensical advice of some so-called friend? A great deal of this occurs, and, I regret to say it, is fostered and encouraged by the indifference or omission of many physicians. Too explicit rules and too intelli-

The family physician should guard against this by directing the correct dietary in proper time.

Size is only one feature in an infant; strength, symmetry, mental acuteness, teeth, bone activity and joyousness are equally important.

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gent thinking cannot be used in securing a continuation of that good health with which a healthy child may be blessed. This applies all through the nursing period, but more particularly in the few months prior to, during, and after, weaning has been established.

Large Size Does Not Always Mean Success.

Parents will frequently point with pride to the size of a child raised on some line of artificial food. While the extra large size is certainly better than an under size would be, yet to the experienced physician or parent it does not speak loudly unless all other features of the development are up to the same standard—muscular strength, teething, activity, bone growth, and mental acumen. Mere avoirdupois counts for little. What we require in our young is that successful symmetrical development where no part falls behind and thus leaves a weak spot unpleasant to the eye and vulnerable to disease. Overly large and fat babies are always a subject of suspicion, particularly when hand fed. They are too often the future rickety subjects.

Infantile Facts.

Nursed children gain more rapidly than hand fed ones during the first three months; hand fed gain most rapidly during the second three months.

The average weight of nursed and hand fed is about the same at six months.

Healthy children make light-hearted mothers. Steady growth in the infant, mentally and physically, makes her proud.

All healthy children grow most rapidly during the first six months.

Children average a half pound monthly increase during the second year.

Increase of weight is consistent only with healthy organs.

Loss of weight accompanies all sickness, but is most pronounced in diseases of the digestive organs.

The average weekly gain should be at least four to five ounces during the first six months; it is often twice that amount. When less than four ounces weekly, something is wrong and should at once be corrected.

Dentition retards progress, but does not check it.

Children increase about four pounds yearly from the second to the fourth year.

The greatest gains are made during the autumn months.

Little progress is made during the hot summer months.

An infant grows eight inches the first year, and three and a half the second.

The infant always decreases in weight for three days after birth before it commences to grow. This is due to the emptying out of what accumulates in the bowels before birth, and also due to the character of the mother's milk.

Giving Water to Sick Children.

There are very few children who may not have an abundant supply of cold boiled or filtered water when sick. All weaned children crave this, and even many nursing ones also will partake freely of it, especially when

Always give a sick infant water when it is thirsty. Giving milk to quench thirst is often dangerous.

Do not give water or any food to a child while it is vomiting.

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feverish. Formerly, physicians were afraid to indulge this desire, and when water was allowed, it was always given under restrictions, both in amount and temperature. This rule was applied to all patients, both young and old. Since the introduction of the fever thermometer, the true therapeutic effects of cold are more perfectly understood, and cold, even very cold, water is allowed in moderate quantities to most sick children.

Restrictions in Drinking Water.

There are some conditions where great caution must be exercised in allowing this form of drink. These apply mostly to deranged conditions of the stomach. Where there is any nausea, large drinks will generally aggravate and increase it, causing persistent vomiting as long as much water is allowed. Here hot drinks must always be given, and these in very small quantities also; remembering always that the true cure for nausea is to rest the stomach entirely for a few hours, and then allow only what little drink can be borne without causing a return of the nausea. Here all drinks, cold or hot, should be given in teaspoonful doses only.

Water Spoils the Taste for Milk.

Perhaps the strongest and most urgent reason for prohibiting the use of cold water among sick children is the fact that it prevents them from taking the milk, which is an absolute necessity to nourish them through their sick-

Never put more in the glass than you wish the infant to drink. This avoids errors and crying.

ness. The taste for water always takes precedence of, and causes a distaste for, the milk.

While both are allowed, experience always shows that it causes great trouble for the nurse, and irritation, broken sleep and imperfect nourishment of the child are the certain results, because the patient will take water freely and refuse the milk. The error lies in the directions. Bear in mind that milk is 87 per cent. water, and that it is generally unnecessary for the patient that both drinks should be allowed. Simply refuse water entirely, and in a few hours the child will take the milk without any forcing. This will always settle the dispute, and give the child both drink and food.

Where there is great thirst and a consequent danger of overloading the stomach with too much milk, water must be added to the milk, but never given alone in such cases.

Drinking Glass.

The drinking glass used should never contain more than one drink, and never be over half full. Then the patient need not be raised to the erect position before drinking. If this rule is not observed, it is impossible to control the amount taken, or to avoid spilling it over and wetting the clothes around the patient's neck. It is desirable to have a glass big enough to hold at least twice the amount needed at any one drinking.

The Over-Vigorous Father.

Young infants are very immature, and require careful protection against violent exercise. The joyous father, in the exuberance of his strength and happiness, too often

Where water and milk are given to a sick child, the milk is always refused. Stop the water and the child will soon take the milk, or mix them together if needed.

The young infant is injured by violent jarring and pitching. Its bones and joints are easily damaged.

expresses it by shaking the infant on his knee or hoisting it in the air. This is wrong. While he is always excessively careful to avoid apparent injury, yet the immature condition of the bones, ligaments, muscles and internal organs, as also the head, should admonish against the chance of disturbing the nourishment and growth of any one part. Should an accident occur during this violent demonstration of love, it is sure to be followed by years of sorrow. Too many of our dislocated hips and crooked backs bear testimony to the dangers of this practice.

Traveling with Infants.

The great majority of mothers realize the necessity of quietude, also regular and correct feeding with plenty of sleep during the first year of the baby's life. There are a few who are over anxious about the hot season and determine to go to the seaside or the mountains for the benefit or protection of the little one. Usually this is a mistake. There is no place like home for those frail little creatures, especially during the most trying weather of the year.

At home they have all the comforts that can be procured, and the greatest protection against errors in food and clothing that can be obtained. Also they are safe from the changes in the weather when they have the privilege of all the rooms in their home.

In going to the seaside or the mountains many infants are lost by the excessive heat in the railway cars, and the injurious effect this has on the infant's brain.

Reactionary Forces—Mother and Child.

Sickly Mother	Poor Milk.
Overworked Mother	
Irritable Mother	
Gormandizing Mother	
Indolent Mother	
Wrongly Fed Mother	
Dissipating Mother	
Medicated Mother	
Poor Milk	Cross Baby.
Cross Baby	Disturbed Mother.
Disturbed Mother	Poorer Milk.
Poorer Milk	Crosser Baby.
Crosser Baby	Less and Worse Milk.
Less and Worse Milk	Sick Baby.
Sick Baby	Doctor.
Doctor	?

Avoid inherited ideas that your judgment cannot indorse. These damage many infants. Ask the physician's opinion of them.

Inheritances.

To the experienced physician, two features always present themselves when he is called to prescribe for a patient. The first is, of course, the physical ailment, which may or may not be severe. The second is the mental condition of the patient as directly applied to the present sickness. He who skillfully cares for the first and unskillfully neglects the second, frequently finds the patient seeking other advice.

In handling children, the same necessities appertain, but with the treatment divided between the physical ailment of the child as the first part, and the mental experience or knowledge of the parent or parents on this disease as the second part. Where parents are experienced and properly educated, this latter feature gives no trouble; but where inexperienced and uneducated on this subject, too often do we find that traditional ideas or mere inherited aphorisms still guide the parental movements. Here the physician's experience and knowledge, properly applied and intelligently explained, becomes a most important part of his work.

Here is one of the nurse's or mother's opportunities to do good or harm, according as she has profited by these teachings or has followed traditions herself, and thus become the disseminator of ideas, which for origin, sense, and reason belong far back in the dark ages where ignorance and superstition reigned. Every move and expression must, with the sensible mother or nurse, have a reason that appeals to common sense, and anything that cannot appeal to that must be viewed with suspicion, and

the author of it as requiring mental treatment. While on this subject, let us look at a few of the traditions or inheritances which we commonly meet in the sick-room. Many of these contain information of value, which has been distorted by abuse or unreasonable use.

A baby that vomits is always a healthy baby. *Not so.*

A cross baby thrives well. *Not always.*

Colic lasts three months and does no harm to the child. *May last six months or kill the infant.*

A bandage is necessary to the child's health and future development, and should be worn at all times during teething. *Useful only till the navel is healed perfectly,* and to keep the abdomen warm.

Diarrhea is the natural condition of the teething child. *A great error which costs thousands of lives yearly.*

Lancing the gums endangers its prospects of living. *Pure superstition.*

Imperfect washing of the new-born child will cause disease of the skin later on. *Not once in a thousand times.*

Children with eruptions on the skin should be kept as warm as possible. *Should be only comfortable.*

Bathing in cold water hardens the infant. *If short and properly applied.*

The child is hungry every time it cries, and should nurse whenever it will take the breast, regardless of vomiting, fever, diarrhea, or the doctor's directions. *Oh! horrors! Such ignorance.*

The child will starve or become weak if not fed in all conditions of sickness. *Timidity and ignorance.*

Sore heads are healthy and cannot be cured without endangering the brain. *Disgusting; not true.*

Quality and quantity must always be considered in feeding an infant. Omit one and the other is useless.

It is necessary to take the child out every day regardless of the weather. *Only in such weather as is suitable to delicate people.*

Size of the baby is all the evidence required to guarantee success or indorse its feeding. *A serious mistake.*

Picking the nose and paleness are an evidence of worms. *Not so in one case out of fifty.*

The Two Q's.

Who are they? They are the twins that accompany the infantile era, and may be found in a large proportion of the houses where there are children. Particularly are they present where there is a hand-fed baby. Rare, indeed, is it to find such a house and not find one or the other of these two gents, or commonly both of them, constant or at least frequent visitors, and meddling with the infant's dietary. Strange as it may appear, their presence is not commonly recognized by the family unless they become unusually intrusive. Even when their presence is noticed, often there is difficulty in recognizing which of these two Q's is the one present and the one causing the infantile disturbance.

Parents must never forget these two Q's—QUANTITY and QUALITY. They are twins, and like most twins, are with difficulty recognized by all except those familiar with their presence and the results they commonly produce in the infantile dietary.

The first gent is nearly always superabundantly present where there is an old nurse, a grandmother, an old friend, or an indiscreet neighbor. The second gent

Always talk of pleasant and cheerful things in the sick-room.

always stands at the elbow of the free, glib, thoughtless adviser.

Subjects to be Avoided in the Sick-Room.

While this subject is not so important in nursing children as in caring for adults, yet there are many instances where it is a necessity to avoid all discussions of sickness and sick people in the presence of the sick child.

To fully understand this, it is almost necessary that those attending or visiting the sick should have been seriously or apprehensively sick themselves for a considerable time. Then they will have smarted bitterly from the mistaken kindness or sympathy of the friends who carelessly remarked on their paleness or bad appearance, or who gravely asked if they were not feeling so well as usual. Such remarks on appearances, or questions expressing apprehension, with reports of unfavorable cases of sickness, are the perfection of cruelty to the sensitive, over-anxious, depressed patient, and should never be allowed by any one having charge of the sick. It is incumbent on nurses that they always prohibit visitors from discussing such subjects, at the same time that they strictly limit the length of such visits.

These things must be done regardless of the desires of the patients in most cases, remembering that the mind is weak as well as the body, and cannot stand long or doleful talks, which are depressants; but may be benefited by short and pleasant talks, which are tonics.

The nurse or attendant who does not always take proper care of the mental condition of the patient, is neg-

The physician should educate the parents on all subjects concerning their children. Intelligence must control.

lecting one-half of the duties necessary in the sick-room, and is not competent for the work. Such oversight or carelessness on the part of a nurse is unpardonable.

Intelligence at Home.—Physician and Parent.

Too often is the physician called to attend children in extreme danger. This should not be the case so frequently. Often his examination shows evidences of the disease easily seen by any mother with the most meager knowledge or experience, if she were only taught to look for it. While it requires skill of the most decided kind to recognize many infantile ailments, it requires little to see white spots in the throat, or red blotches on the skin, and other diseases as easily visible. The physician should at once assume the position of educator to the mother, and teach her the habit of looking at vital points carefully whenever the child droops the least from his daily habits of activity, happiness, and hunger. She should know the dangerous points and when to take alarm. In other words, she should be taught to know a distinct and safe reason for the sickness, or call her physician at once.

As it is now, with many, the physician is called on the third or fourth day of the child's sickness. Frequently he has to recognize a sore throat or a collapsed condition which is now fatal, but could easily have been corrected two days previously. A mother taught to examine her child carefully would always avoid this, and would never be horrified, as we commonly find them now, when we show them a dangerous sore throat of which they had no suspicion. The trained mother would know how to

Always examine the throat for white spots in a sick child. Infants rarely show these before a year old.

Be sure the infant's food gives comfort now, and successful development at all times, now and in the future.

take a spoon and look for herself, and would make it her habit to examine carefully every visible part of the complaining child. Mortality always increases with delay in proper treatment. Statistics show fatal results in some diseases in about the following proportions where treatment is delayed: First day, five per cent.; second day, eight to ten per cent.; third day, sixteen to twenty per cent.; fourth day, thirty to forty per cent.

Unhealthy Development.

Here, unfortunately, is a feature which seldom receives the attention it demands when arranging the dietary of the infant. Parents are only too well pleased in most instances to secure a food that makes the cross child happy, and the restless, wakeful one a fair but wakeful sleeper. While these are, of course, desirable results to obtain, they are not by any means all that must be secured in order to guarantee the child's future physical and, necessarily also, mental development.

A very dilute food, or a food easily digested but wanting in the necessary elements of nutrition, may and often does serve a very useful purpose in relieving *for a short time* the irritated condition of the digestive organs produced by unsuitable diet or overfeeding. But such food cannot be persevered in with safety to the child's future; nor can parents always persevere with impunity in keeping a child nursing a breast that perpetuates the cross condition, much less continue other foods that do not increase the child's weight and strength.

Continued irritation of the stomach weakens any child. It causes three-fourths of the sickness in infants.

These are some of the weak points where our parents have not been well educated, and where very bad results have been secured. True it is, that many cross children thrive, but do so in spite of their dietary. They could do better and be happy also, with a little well-directed modification of this same diet. Success and happiness might as well run together when possible. It is not of the rosy, plump, over-active, vociferous child that we are anxious, but it is of the pale-faced, soft-fleshed, puny weakling that we would particularly take cognizance. It is of these especially that we would say, the *food lacks some* of the *necessary elements* of *nutrition.*

Even with the most vigorous cross child it behooves us to be on the alert, lest the source of his crossness prove an easy avenue through which he may become infected with dangerous disease germs and be changed from the vigorous, cross fighter to the puny, cross weakling. Such is only too often the case with long continued irritation of the digestive tract.

Nursing Too Long.

Many mothers commit the serious error of nursing their babies too long. Every mother must remember that there is no fixed number of months during which it is safe for her to continue nursing. She must remember that the result on the child is the only guide she can possibly follow and do justice to the child's future. Were the scales used regularly each week, and the mother's nursing governed by her ability to adequately and regularly increase the weight of the child, this error of nursing too long would rarely occur.

The mother's milk is not a safe food after the infant is a year old.

Unfortunately in this matter, inheritance, tradition or example has impressed the fact upon mothers that they can usually nurse the child a year, eighteen months, or more with advantage to the little one.

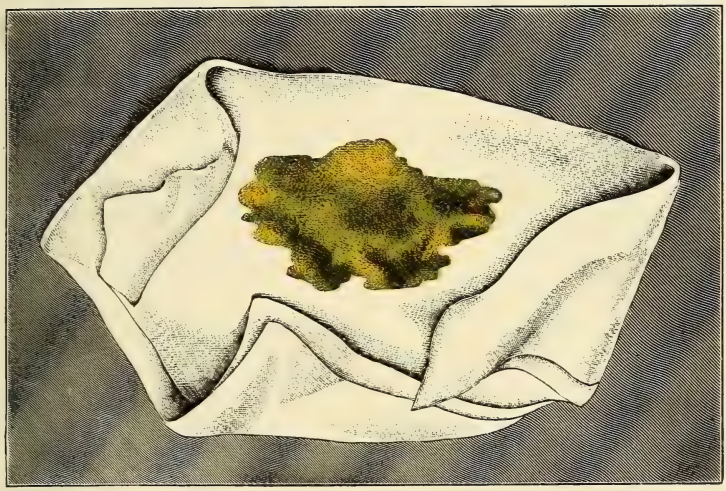
Even in the face of reduced weight, paleness, lost sleep, nausea, vomiting and diarrhea in the baby, many a mother fails to see that these changes are due to her milk.

Many mothers will not see it that way, and persist in nursing till the child's future development is materially damaged and the life in many cases endangered. The sure effect of this unsuitable nursing is always detrimental to the little one. Weaning should be undertaken at any age, when weight failure in the child with bad stools demands it.

Dwarfs and Small Sized People.

These members of humanity when not too pronounced are often very interesting, but when the shortness of stature is below the interesting point, then an opposite mental impression is produced upon seeing such deformed people.

Little does the patient mother think how far her angelic patience and endurance are contributing to the production of members of this small race, when she, month after month, toils with the cross, sleepless, vomiting and perhaps, also, purging child. Did she for a moment realize that her patience possibly meant the child's future diminutive size, how soon would she rebel and move all human agencies to find the proper outlet from this unpleasant and anxious condition. Fortunately we



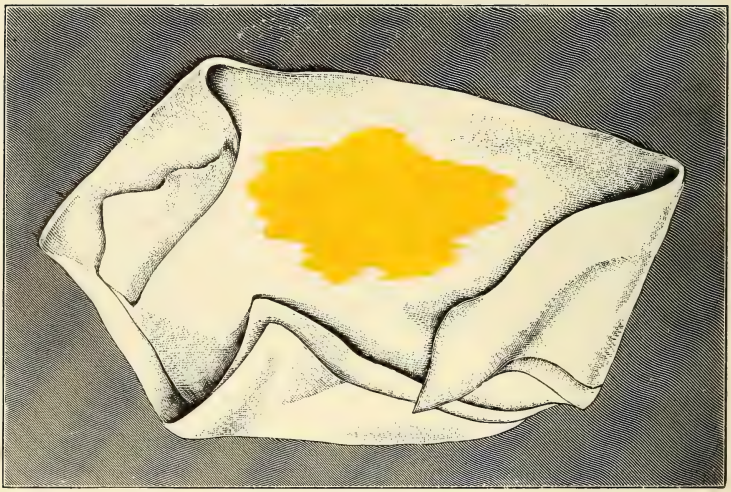
Diaper, No. I.

This Diaper shows the colors and character of stool following a catarrhal or inflamed bowel in Infants. The proportions in green and yellow colors vary continually, and the amount of slime may increase till the stool seems to be nearly all slime and semi-transparent. When very slimy blood is often mixed with it, and such cases appear most frequently in August or September.

The green and yellow colors alone, with some slime, commonly follow nursing unhealthy or irritating human milk, any time after birth. They also appear always after feeding unsuitably prepared cow's milk, or too much of it. and are frequently mixed with white curds.

This Stool should always be regarded as due to Acute Intestinal Indigestion, and demand an immediate reduction of the amount of food, and generally also a change in the quality of it.

Green in the stool is always notice of an error in the food. Slime added to the green color indicates a dangerous error. White curds show too much proteid, or cheesy element, in the food. The whole error in color and slime is commonly due to this excess of proteid.



DIAPER, NO. II.

The colors in this diaper can only be produced by nursing an abundance of healthy human milk. The orange tinge is the strongest evidence of healthy fat in human milk.

The absence of white curds shows perfect digestion of the proteids, and the pasty consistence shows a proper proportion of Fat, Sugar, Proteid and Salts in the milk.

Infants with these stools are always healthy and vigorous.

Dwarfs always, and small sized people frequently, can trace their sizes to imperfect nutrition of the whole body or parts of it.

find few dwarfs, but those few are the direct result of imperfect nutrition during infancy.

When we look at those small members in individual families, where the rest of the children are large and well-developed men and women, then we see members of the human family who can rightly charge their diminutive stature to the errors in dietary which they endured during the first two years of their existence.

Green, Foul Smelling Stools.

These are due to errors in the mother and to errors and results in the infant.

In nursing infants, the error is most commonly in the mother's milk. Let me here say, that a mother whose mind is more active than her body is likely to be a poor nurser. Physical exercise in the form of daily duties conduce to the secretion of good nourishing milk. The most common errors in the mother which cause green stools in the infant are:

Weakness.
Thin blood.
Poor digestion.
Irregular exercise.
Too much exercise.
Not enough exercise.
Too much meat or nitrogenous diet.
Overeating of all foods.
Cold drinks.
Sour foods.
Raw fruits.
Lost sleep.
Fatigue.
Mental worry.
Dissipation of all kinds.
Medicines.
Sickness.
Irregular nursing.

In the infant we find green, foul smelling stools due to:

Immaturity.	Too rapid nursing.
Imperfectly developed digestive glands.	Exposure to cold or excessive heat.
Unsuitable food.	Inheritance.
Too much food.	Syphilis.

As green, foul stools mean sickness soon, if not now, and imperfect development always, it is necessary that the cause be recognized and quickly corrected.

Slimy Stools; Mucus Stools.

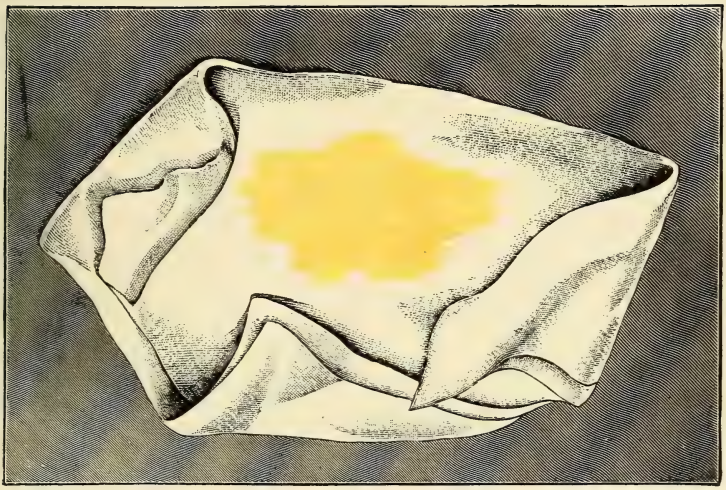
Mucus is the natural lubricant and moistening secretion of the healthy bowels. Slime is the natural product and lubricant of irritated, inflamed, or catarrhal bowels.

Slime, added to natural yellow, odorless stools, shows moderate irritation from strong food or too much food. Diluting the food or reducing the amount will generally remove this slime in two or three days.

Slime covering small lumps the size of rice or peas requires careful examination. These lumps should be crushed with a match to be sure they are stool and not curd.

Slime with curds shows there is too much proteid in the milk. This curd should always be crushed to be sure it is not well-digested stool. The food should always be reduced in proteid in these cases.

Slime with green colored stools always shows a very irritated condition of the bowels. In these cases there is generally plenty of curds, when the infant is taking a milk food. The irritation is so great that the food passes through too rapidly. Here the food must be promptly reduced, and only such amounts of it given as show good digestion in the stools.

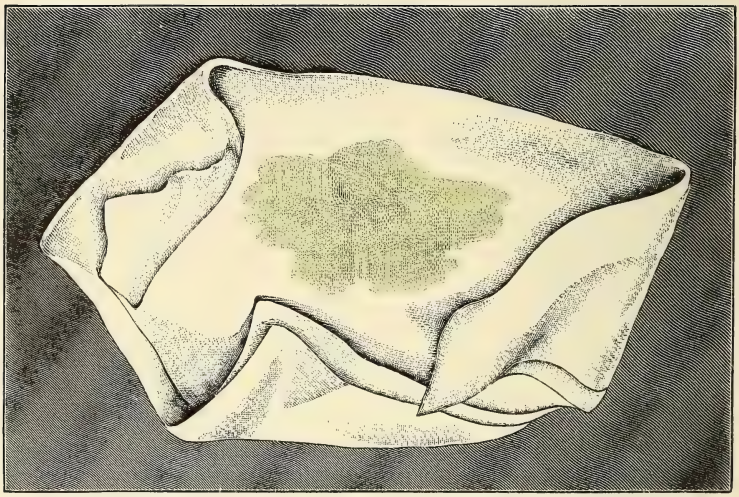


DIAPER, NO. III.

This pale yellow color shows the stool following successful feeding with properly prepared healthy cow's milk.

Mothers and nurses should note carefully the difference in the shades of yellow produced by human and cow's milk.

The pale yellow is generally stiffer and more constipating than the orange yellow, but is otherwise equally healthy when fully digested.



Diaper, No. IV.

This grayish green diaper shows the change in color usually seen from giving bismuth to the infant for digestive or bowel disturbances. This color will vary from this light shade to the darkest green, according to the increased amount of bismuth given. Mothers and nurses should always know this, and ask the Physician whether the color is due to the medicine or the disease.

Bismuth usually causes very foul stools, and favorable progress can only be recognized by the stiffer consistence and better formation of them, while under this treatment. When the stools lose their watery character they become less frequent and recovery is near.

Green, foul smelling, or slimy stools mean serious sickness soon. A change or reduction of food is demanded.

Cross boy babies often need circumcision before they can become happy and thrifty.

In the milder forms of slimy or mucus stools, a cure is generally effected by correcting the dietary; but in the severer forms, the irritated bowel also requires some medicinal assistance to relieve the colic, heal the bowel, and make the infant comfortable and able to sleep its full share. For this purpose, Remedy No. 39 should be used regularly till the stools become thick and free from slime. They will always be dark while taking this medicine.

The Cross, Uneasy Boy Baby.

Where no explanation of this baby's unhappy and uncomfortable condition is found in the stools, attention should always be turned strongly to the urinary secretion and the genital organs.

The color and odor of the urine should receive careful attention to see that no reddish or yellow coloration of the diapers is present, and that strong odors are absent. Strict watching of the frequency of the urinating should be observed, as undue frequency points to an irritated condition of the urinary channels. Unhealthy urine causes undue frequency in voiding it.

Most commonly the cause of too frequent urination and a general nervous, cross habit in a boy baby is found in a narrow and long foreskin, which has become sore and irritated from the urine lying in it. Any effort at retracting this foreskin over the glans shows the skin red and tender, with a very small opening in it, little more than the small end of a lead pencil.

This tender skin is irritated and keeps up a constant desire to urinate. The only cure for these cases is to circumcise the infant at once. This generally gives prompt relief and a happy baby.

Infantile Literature (Purely Medical).

If the present young parents of America could witness the thousands of pages written yearly, particularly during the last ten years, on infants and their diseases, they would have a much larger conception of the importance of this subject. Then we would see less of this resting on ancestral or traditional practices as a guide in this most important matter in every family circle.

Could they but see the patient, plodding labor, daily and yearly, given gratuitously by many of the brightest and most experienced minds in the medical profession to those institutions caring only for well and sick children, they would obtain another view of the importance of caring properly for those little ones.

Could they read regularly the weekly and monthly medical periodicals treating of infantile subjects alone, they would have opportunity to gather at least part of the information elicited by the bright, clear writing and sharp, concise medical society discussions which they contain, and thus their information and opportunities would be broadened. Would that these conditions were so! Then would we see increased numbers of bright, clear-headed, thoroughly educated, independent thinking, logical, and experienced mothers intelligently managing the many infantile changes of their children in the same systematic, smooth, and successful manner that they now adopt in all other matters pertaining to their household and family.

Good writing cannot be done without new material. Thousands of pages are produced yearly on infantile subjects by the best of physicians.

The mother should understand the sickness as the physician does. Only in this way can they work together.

Instead of such mothers being numbered as now by the hundreds, they would rise up before us in the hundreds of thousands. Think what a force they would exert on the shaping of future humanity; think what a reduction there would be in the making of human culls by bad management; and then, just think for a moment how soon, with these scales of ignorance lifted from female eyes, would we see the production of these human culls almost avoided, the accidents and mishaps of future maternity removed, and our daughters able to look forward to future wedlock without the fears which now justly confront many.

Mothers Should Understand the Sickness.

Fortunately, with a higher and more intelligent education, parents, are, here and there, dropping away from the traditional practice of leaving all to the doctor. His word alone, without intelligent explanation, is no longer sufficient to command obedience and inspire confidence in trying cases. The intelligent mother expects and is entitled to the fullest explanation of her child's sickness and requisites for successful treatment. Then she becomes an interested thinker in the treatment as well as the devoted mother in the nursing. How much better can the work thus be accomplished, and how much greater satisfaction and success will accompany and follow the efforts of the thoroughly scientific, well educated

The true physician educates the mother above the thoughtless opinions given of her sick infant.

and painstaking physician, when backed up and assisted by such an intelligent and caretaking mother.

Only physicians who avail themselves of these resources, and are careful to educate the mother on all the valuable nursing points in the sickness, enjoy the pleasurable successes which follow this community of labor. The treating of sick children is rich in these opportunities, and when well cultivated with intelligent directions, welds securely the friendship of parents for the physician, whose interest in the sick child is second only to that of the parents themselves. Mothers under such tuition seldom, if ever, make the serious mistake of overlooking an important change in the child's progress, nor do they ignorantly brand as harmless the commencing symptoms of some future severe sickness. Such mothers soon learn the important features in any class of sickness, and intelligently form opinions of the necessity for treatment in such cases at all future times.

Where this educational care of a mother is taken, she perpetuates her knowledge in her own family, and often also among other families, thereby disseminating reliable and useful information. Only in this way can the community be educated up to the necessities of an intelligent understanding of sickness.

Weights of Infants.

The male infant is usually heavier than the female at birth. Males average from seven and a quarter pounds to seven and three-quarter pounds. Females average from seven pounds to seven and a quarter pounds.

Changes in weight give the earliest notice of the changes in the child.

The vitality of the infant is usually in proportion to the weight. While some small infants thrive unusually well, we know by experience that this is due more to the good quality and quantity of the mother's milk than to any other factor.

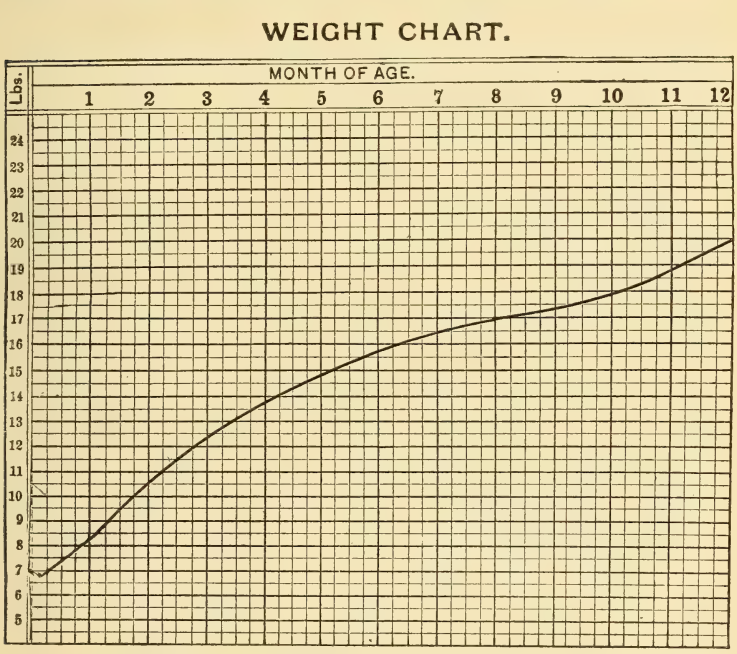


Figure 42. Weight Chart. The curved line shows a healthy normal increase in weight during the first year.

The infant loses weight while the mother's milk contains colostrum—usually during the first three or four days.

The average gain in weight is two-thirds of an ounce

Where a child is not weighed regularly, the exact character of the stools will be the best and earliest guide in feeding it.

daily during the first five months, and one-third to two-thirds of an ounce daily from the fifth to the twelfth month.

Usually the infant's weight is doubled at five months and trebled at fifteen months.

The weight at one year is doubled at seven years, and again doubled at fourteen years.

Uniform increase in weight is checked by changes of food, teething, and sickness.

Regular weekly weighings should be made and recorded on the weight chart (Figure 42) for future reference.

All changes in diet and the dates thereof should be recorded as they occur, with their effects on the infant.

All increases in diet should be regularly recorded, and an interval of two days should intervene between all changes in quality or amount of the infant's food.

Two days are requisite to show the effects of any change in the dietary.

After two days' trial of any change in quality of food or amount thereof, if the stools remain yellow, pasty, and of the proper odor, it is safe to make another addition if needed.

If the stools show green, slime, foul odor, or a watery character, the food should at once be lessened or changed back to the point where healthy stools were obtained.

All these dietetic rules must be observed in order to secure the weight changes above enumerated.

Nausea and vomiting following a change of food show the change to be an error.

Restlessness, fever, and frequent waking should be read the same way.

An infant is as strong as its digestive glands are healthy. Do not damage them when it is born.

Do Not Spoil the Baby's Stomach.

If there is anything more to be avoided than another in caring for an infant, it is the injured stomach. Nothing gives such labor and toil to the mother, such worry and anxiety to the physician, and such a harvest to the undertaker as the injured or damaged stomach of the infant; and yet our civilization continually strives to establish this result on a large percentage of our newborn infants before they are a day old.

How carelessly is the question asked, "What will I feed the baby?" as soon as it is dressed, or when at any time the mother has not enough for it. Oh, horrors! Just listen to the variety of answers from almost as many as hear the question. *Now!* Just now should the mother know, and answer promptly the *correct thing.* But unfortunately too often she does not, and some most unsuitable food is given which starts immediately the first indigestion or gastritis. From this the infant recovers with its life; and often also with its enemy—a permanently enfeebled stomach. From the latter it will never perfectly recover during infancy, doubtful if it will during youth, or perhaps even during manhood. There is nothing so handicaps a physician in his treating a sick infant as a damaged stomach. There is nothing so expensive to a parent as a weak stomach in an infant. It is a veritable harvest for the skillful physician as he manages generally to keep the infant alive when his advice is carefully followed; but with what a result! A poor, weak, delicate, nervous and irritable child, waiting for the first storm of whooping cough, scarlet fever, measles, or diphtheria to blow it away.

After two years old, the child suffers little from stomach and bowel disturbance.

Never give the first careless unsuitable meal to the infant. Many physicians' bills, and often the undertaker's bill also, are the price of so doing.

The only safe artificial food for the newly-born infant is weak sugar water till the mother's milk flows abundantly. And the only addition which is safe when the mother's milk is delayed unduly long is one teaspoonful of cream to every ten to fifteen of the sugar water. Three to six teaspoonfuls are enough for one meal; more is injurious.

Influence of Age on Sickness.

Age materially alters the character of infantile sickness. After two years there is less bowel and stomach trouble. During the first dentition, or till the infant has reached perfect masticating power, there is a gradual evolution in all the digestive organs and secretions tributary thereto. They seem to have reached a maturity at that time which gives a permanency to the amount and character of the work they can do. From this time onward the child's digestive power only increases as he grows and demands more food. It has reached the power to digest all nitrogenous and starchy foods, and the limit is principally in the amount allowable at each meal.

After two years the sicknesses of childhood are similar to those of adult life, with the addition of those epidemics from which it has not suffered before.

CHAPTER XI.

HOME INFANTILE TREATMENT.

Selecting the Nursery.

When possible, the nursery should be located on an upper floor with a southern or western exposure, where plenty of fresh air can always be secured, where the room can be regularly aired without exposing the child to drafts, and where there is abundance of sunshine. The nursery requires a good-sized room, or better still, two rooms opening into each other, both of fair size. Where there is only one room, the use of the hall tributary to it should be secured. Remember that the child and the nurse occupy it all the time, and there are also many others frequently coming in to see the little one. All these demand a full and regular supply of fresh, warm air from the adjoining hall or room, as the window can only be used for that purpose in the finest of weather. A room with an open grate is much to be preferred, as this invariably secures ventilation, whether a fire is used or not.

The furniture of the nursery should be plain wood or wicker, the cots iron or brass, and rugs should cover enough of the floor to secure quietness. Only the amount of furniture really needed should be allowed. All upholstered goods should be entirely excluded. By

this means the customary cleaning of the room and its contents can easily be accomplished regularly or after any sickness, and there will be little danger from any contagious influences lingering in it.

There are certain appliances beyond the regular furniture always requisite for a fully-equipped nursery, where an infant will be the principal occupant for a year at least. These are:

1. Some way of making a quick fire.
2. A pair of scales (Figure 41).
3. A weight chart (Figure 42).
4. Small, warm, wool blanket for weighing the baby in.
5. A thermometer.
6. A small bath tin and accessories for bathing.

Beyond these, there are many things requisite for the clothing of the infant which each mother provides according to her taste.

A quick fire is often requisite in sickness to prepare drinks or warm outside applications, besides giving a means of controlling the general temperature of the nursery.

A scale that will give a clear idea of the child's weekly progress is an absolute necessity in the nursery. There is no means of knowing just where the infant is each week except by using the scales. Often this will give warning of imperfect progress when the eye sees no evidence of it, and thus very often, weeks of imperfect growth and approaching rickets can be avoided.

The weight chart (Figure 42) is a necessary record of the work in the nursery. By its use the exact weekly progress is recorded, and all doubts and disputes on this point are avoided. When the mother finds her child's

Follow these figures for success in feeding.

Cream, 4 per cent.		
Sugar, 7 per cent.	}	**This is human and kindness itself.**
Proteid, 1½ per cent.		
Cream, 4 per cent.		**Components of cow's milk. This**
Sugar, 4 per cent.	}	**is brutal for a young infant, but**
Proteid, 4 per cent.		**good for a calf.**

progress varying from a normal healthy increase on the chart, she is forcibly reminded of an error somewhere, and has an unmistakable reason for an investigation into the feeding of the baby.

A small, warm blanket suitable in size for holding the baby during weighing is another necessity. This procedure should always occur before or after the morning bath and before dressing the infant. There must be no change in the blanket used, the hour of weighing, or the condition of the baby—always naked. Only in this way will weighing be reliable.

No nursery should be without a thermometer. It shows the temperature of the room, which should always be from 70 to 72 degrees. Where no thermometer is present, the temperature often creeps up to 75 and 80 degrees. This is too warm for both child and nurse. A bath thermometer (Figure 9) should also be used for testing the water in the bath. A hand test is very unreliable. The bath should not be lower than the skin temperature, 94 to 96 degrees, nor much higher than the blood temperature, 99 to 100 degrees. The temperature of the infant is one-half to one degree higher than that of an adult.

Where cooling baths are needed in feverish conditions, the thermometer is the only reliable guide. In these baths, the water should be from 85 to 95 degrees.

 A small bath tin that can be moved near the fire is

Heat is second only to food in the proper care of an infant.

Every variation in the chart gain is a signal, warning the mother of danger.

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really a necessity. The bath must always be followed by a healthy natural color of the skin to be successful and not injurious. Where the atmosphere is too cool, there is danger of chilling the young infant while nude. Nothing is more dangerous to these little ones than cold surroundings. If there is any time when a high temperature is needed in a room, it is while bathing a young infant. Do not forget that prior to birth it was surrounded by a 98½ degree temperature. The younger the infant, the hotter the temperature should be.

Infantile Weights.

A healthy nursing infant gains at least two-thirds of an ounce per day, or four to six ounces weekly; less than this shows sickness. The weighing should be done weekly, and marked on the chart (Figure 42). Girls gain less than boys. Birth weight is doubled at five months and trebled at fifteen months.

Hand-fed children are often slow in starting to gain weight, but the food should not be changed as long as the stools are correct in color, odor, and consistence. Frequently when they commence to grow they gain very rapidly, and thus recover for lost time in the beginning.

Mother's Judgment.

Does a mother know when her baby is sick? Certainly; *no person* knows so well or surely that the baby is sick, and nobody knows so well when the baby is better or worse during a sickness as the mother. She detects all the changes as rapidly as they appear and before others can

The motherly instinct always recognizes unfavorable changes in the infant.

see them. Often she cannot explain the exact reason why she knows the change has occurred, but she knows it has occurred; and the physician or nurse who ignores her opinion as to the child's condition will most frequently make a mistake, to be afterward regretted.

Why does the mother so correctly recognize the child's condition? Because she is with it from its birth, and all her senses are educated to the natural condition of health in the little one. Any variation from this condition gives the mother a new sensation, either of sound, sight, feeling, or smell. The farther these sensations diverge from the natural ones, just so much sicker is the child in the mother's judgment, as it is likewise in the judgment of the experienced nurse or physician.

Physician's Visit.

The more convenient and comfortable the clothing and light are arranged, the more successful certainly will be the examination of the physician, and consequently the more satisfactory the directions and details for treatment for the next twelve to twenty-four hours. Now is the time to present every new or aggravated detail and feature since the last visit of the physician. In this connection nothing must be omitted, but everything brought forward in an unmistakable manner, and persisted in till he disposes of it. This is necessary to prevent omissions, and in order that they do not recur, notes should be made of all important matters as they occur during the intervals of his visits. This habit, if carried out, greatly increases the interest taken in the patient by all, and should always secure the best results.

Always teach the infant to regard the physician as her best friend.

Never omit reporting the condition of the infant's nutrition, as proven by the stools. Yellow color is needed for success always.

Do not allow your anxiety about the sickness to obscure your judgment about the infant.

It improves the nurse or mother who does it, and establishes the confidence of all in her industry, skill, and carefulness. No ambiguity or confusion must exist as to directions for the next day's treatment. A clear and thorough understanding of all details and directions in treatment must be secured in order that she can make the work a success. She should be sure to ask all the questions she thinks necessary to clearly understand the physician's meaning and directions.

Frequently children are nervous about strangers, and consequently fearful and timid when the physician calls, so that it is with difficulty he can make an examination. Under this strain the work is difficult and mistakes are more likely to be made. Frequently it will be necessary at first to take the child on the mother's lap to give it confidence till it becomes accustomed to the presence of a stranger and thus acts naturally. When it becomes easy and familiar it can, if necessary, be laid on the bed. With timid children, a little talk properly used will often interest the child in the coming of the physician and make the visit one of pleasure to all parties. The old days, where a foolish dread of the physician was instilled into the little ones, is happily passing away. While this relic of barbarism has not entirely died out, its presence is now seldom witnessed. The physician is compelled to do enough unpleasant things to the little one without having them exaggerated in the child's mind.

General Watchfulness.

Physicians are frequently called to attend sick children too late in the sickness to be able to do ample justice to the disease. While this difficulty will always continue to a large extent, it behooves the nurse or mother to be always on the alert to recognize the earliest symptoms of a sickness, or any complication that may arise during a sickness. Errors are frequently made by this omission, and serious damage done before the physician is informed of the change. Particularly should they be on the alert for anything that interferes with the quiet sleep, comfortable swallowing, easy breathing, regular stool, or natural movements of the little one.

Again the best judgment must be shown in nursing any sickness, that the nurse does not lose sight or watchfulness of the infant himself. There is a possibility that in resting an irritated throat or stomach she starve the patient; that in securing the necessary sleep she overlook a foul breath; that in her attention to disturbed bowels she overlook the loss of sleep; that in her efforts to control the temperature she does not notice the coldness of the extremities; and hosts of other complications which are continually arising. These the intelligent, industrious nurse or mother must ever watch most carefully and report to the physician, never allowing any feature to pass till it has received his careful thought and attention.

All these matters arising in the intervals between his visits should be carefully noted down, so there can be no possibility of forgetting them when he next calls. Here it is important that any and all things which attract her attention should be referred to him, and never passed over as of no importance.

Good nursing is often more important than good medicinal treatment.

The careful, anxious, skillful physician never considers any matter she refers to him as unnecessary, but on the contrary, is pleased to know that she is watchful and does not assume that new symptoms or changes are ever unimportant. Nothing so annoys a physician as to find the mother or nurse assume that she knows what is or is not important, and act accordingly.

Cot vs. Lap Nursing.

Some contend that cot nursing is preferable to lap nursing, while others contend the opposite. The truth, as usual, lies in the happy medium.

The sleeping child is decidedly best in the cot. Here it is not disturbed by the motions or extra heat of the nurse, and has the full benefit of its sleeping hours.

The waking babe requires the handling of the nurse for development. In this way, it obtains that exercise and freedom of motion requisite for developing all its muscles, bones, nerves, and skin. In developing these parts it secures a strong heart and a vigorous circulation, absolute requisites for a healthy growing baby.

In thus mixing the style of nursing we also avoid deformities of bones that commonly occur when too much cot nursing is allowed. A nurse who tries to keep a healthy baby in the cot while awake is not doing her duty to the little one.

In hot weather some cool device, such as a hammock or light wicker chair, should be used to avoid extra heat. In these, the nurse can play with the infant. The hammock or cool, open-topped cot with spindle sides, should always be used with sick children in hot weather. With

Give the infant plenty of room to turn and move in sickness. Never keep it in a small room or a hot one, nor buried in feathers.

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these a free circulation of air, continually cooling the feverish infant, adds materially to its recovery. There should be only sufficient nursing on the lap to rest the sick infant by changing positions, or to give exercise to the healthy infant.

Rest.

Rest to the irritated organ or part of the body is the groundwork of all skillful treatment. A proper application of this thought to a sick child demands a perfect knowledge of the functions of the different anatomical structures that are irritated, and also the most probable cause of the disturbance. While absolute rest cannot be obtained for organs in which continuous labor, to at least a moderate degree, is essential to the life of the patient, yet a very much lessened amount of duty to any and every organ can be obtained by a judicious attention to its functions.

The stomach of the feverish child should have rest by lessening the food placed in it, and also by selecting the food most easily digested. The same treatment is applicable to the bowels and liver. The kidneys are rested by lessening and carefully selecting the drinks allowable. As the heart finds increased duty with every effort, no matter how small, and also with every increase of temperature and changeful emotion, it becomes necessary for rest, that absolute quietness of the patient and surroundings be demanded; also that all febrile irritations be subdued as rapidly as possible by baths or sponging. Almost any factor disturbing the heart causes a like

Without rest the sick child cannot improve. Rest means plenty comfortable refreshing sleep.

Variations in the amount of sleep indicate the severity of the sickness.

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increase of work in the lungs; and disturbances in the lungs react on the heart, increasing its duties.

The same intelligent, thoughtful application must be made to each and every part of the body to secure good results—less light, reading, and seeing to the tender eye; less noise and talking to the painful ear; less thought and more sleep to the aching head; less motion and play to the strained limb; less friction and washing to the chafed or injured skin; less solid food and more drink to the tender mouth or throat.

There are no features so essential in properly caring for the sick as a due observance and a careful and thoughtful application of the idea contained in these four letters, R—E—S—T. With them you can do wonders; without them you can do very little in the sick-room.

Sleep.

Frequently, in considering other subjects and treatment, it has been necessary to refer to SLEEP; but the great importance of this subject in infantile sicknesses demands a separate consideration of this important condition.

The longer a physician practices medicine, the more does he appreciate the important and close relationship existing between the amount of sleep the sick infant enjoys and the danger resulting from its sickness.

As a rule in most acute maladies, an infant's sickness becomes dangerous in direct proportion with the amount

When in doubt, remember the twins—QUANTITY and QUALITY. Which of them is disturbing the child?

of sleep it loses. Where sleep is lost at night but secured in daytime, this removes the danger.

In advanced sicknesses with head complications, the danger is usually in proportion with the excess of sleep, and stupidity or drowsiness present.

A variation in either direction from the normal condition should always cause alarm, and be a just reason for calling in the physician.

Common Sense Treatment.

The giving of remedies to sick people is the rock on which physicians divide into the so-called pathies. Were it not for diversity of opinions at this point, all physicians would be giving the same remedies and treatment to their patients. A difference is always the fruit of thought. Without a difference, then, could we have no progress, no contention, no study, no incentive to effort; all would be alike, a lamentable condition, where one is as good as another. As thought produces different results, little wonder is it that we have many theories, honest or dishonest, as to the proper treatment of the sick.

If we knew "the truth, the whole truth, and nothing but the truth" of each sick person, there would be no room among honest physicians for pathies or a difference in treatment. The correct thing to do would be so apparent that mistakes need never occur, and reflections would be unknown.

On one feature at least we must all agree when handling or caring for little children. "No matter what we do for the sickness, be sure we take good care of the child."

This means that we must always conserve all the forces

Cheese is made from proteid (casein). Excess of cheese sickens the father. Excess of proteid sickens the infant.

of the little one, continually adding to its *wholeness* with our best experience and most careful thought.

To do this successfully is the goal of the anxious physician's thought.

When the infant is sick, the mother sends for her physician. For what purpose? To show her what is wrong, and how to correct that wrong. In other words, the mother is afraid of losing her little one; afraid that the sickness may become serious, and the stream of life flow out of its cherished and blessed form.

"Flow out!" That is a good idea; that expresses our thoughts exactly. In the "*flowing out*" there is decrease of the *wholeness;* there is constantly less of the child. Our duty is to stop that flowing, to stop that dangerous current. If so, we must use such means as do not add to the flowing, but such as add to the child and also stop the current outward, with the mildest yet most efficient means in the shortest time possible.

Children die in various ways; in other words, life flows out through many currents or streams. Let us look at some of them and see their various courses.

A glance upward shows us in the distance the cerebral current in the great rapids of continual lost sleep, delirium, or convulsions, or in the overwhelming sea of coma or insensibility. Here sweet rest is rightly sought by cooling and bathing till calm sleep averts this dangerous current.

A glance cast lower in the little form brings vividly into view the dangerous current of strangulation. Here is one of the most turbulent and dangerous streams on which the life of the little one can float. From time imme-

An infant is as strong as its digestive glands are healthy.

Infants grow in proportion as their mothers are sensible on infantile subjects.

morial up to 1896, the large majority of these lives were strangled in the diphtheritic sea of blood poisoning. Even to this day, only on the first or second day can the watchful eye of the mother, aided by the prompt assistance of her physician, see clearly to float the precious life *safely* in the *antitoxin* boat. A day or two's delay beyond this time renders even this means of rescue unsafe.

As our eyes look lower over the little form, we see its life tossed on the current of rapid breathing, and we know that here the flow is ever and ever more rapid till the sea of suffocation is reached. Here we must trim our sails most carefully, using the foresail of fresh air, the topsail of quietude, and the mainsail of coolness, filling in with jibsails of nourishment, sleep, and sponging till we cautiously reach the calm sea of recovery.

As our eyes look anxiously downward over the little form, we behold the digestive current much troubled and ever and always nearing the deep and very fatal diarrheal torrent. Here we know well that unless the digestive load is *lessened* and made *very light*, this nourishing boat will surely be lost in the diarrheal sea.

Having stopped this exit of life, we are made more anxious when we see the mild alvine stream made into turbulent rapids, tumbling over masses of undigested drift, fermenting waste, and rotting residue, which will surely swamp our frail craft with its precious burden of life unless we hastily sweep the intestinal passage clean, and check fresh rotting incumbrances from above.

But the anxious eye is soon disturbed when it observes

Be sure you feed all the elements of milk in their proper proportion. Sugar is more than half of the food in human milk.

this precious craft likely to be stranded on some torrid stream, whose waters are being rapidly absorbed by the hot surrounding rays. Well do we know that soon this intense fever heat will wilt all within its reach unless *copious, frequent cooling* waters bathe the body and float the frail craft into a permanently cooler condition.

Have we reached a haven of safety? Unfortunately, no! We have passed many dangerous currents, but here, alas! our craft has wandered into a urinary current loaded with noxious and waste deposits, blocking the way and intensely dangerous to all *voyageurs* on its surface. Well do we realize the importance of haste that we may reach a larger current giving these poisons an exit, and our precious craft an escape through a pure, clear urinary stream.

And now the anxious mother asks, Are we over the worst dangers? We hope so, but must not forget that on any of these dangerous streams we are likely to run on great falls where the fear of failure through deficient power reminds us of the heart itself. We must steadily nourish and stimulate this organ against them.

Beyond these most dangerous and turbulent streams which are so frequently fatal to the little life, there are many smaller currents which ordinarily are comparatively safe under a good experienced hand, but which soon become as dangerous as the worst when the frail life craft is carelessly handled or run without a skillful pilot, who knows well the dangerous currents, eddies, and rocks threatening destruction in all these smaller ailments.

But to return from this digression on life currents. The mother wants intelligent directions, and this means

The amount of green in the stool below indicates the amount of error in the stomach above.

directions founded on a seeable reason. Nursing directions without medication are preferable. Nursing directions and little medication are next most desirable, but full nursing directions, with requisite medication, must always be used where needed.

By a careful study of the principles expressed under the head of *Elimination*, any intelligent mother can see what is required in the beginning of most sicknesses in children.

Elimination.

In the treatment and care of young infants particularly, the mother or nurse always requires to remember that perfect elimination is absolutely essential to the maintenance of good health; also, that in the vast majority of their sicknesses a proper attention to this function is the highway to their rapid recovery.

What is ELIMINATION? It means that all the excreting organs of the body—those steadily occupied in cleansing it every hour during life—are kept continually at work, and that in emergencies, such as sickness, they be given proper assistance or stimulation to rapidly perform such extra duties as the sickness imposes.

The organs whose continual duty it is to eliminate or purge from the body the poisonous and waste products formed, from food, waste tissues and disease, are the bowels, kidneys, skin, and lungs.

Promptness should always be the rule in stimulating these organs to extra effort, as soon as any sickness commences. In the great majority of ailments, a free action from the bowels, a profuse perspiration, or a free flow of

urine will materially lessen the acute symptoms of the attack or entirely remove it. The bowels are best stimulated by castor oil, calomel, citrate of magnesia, or syrup of rhubarb. Both bowels and kidneys are well stimulated by Remedy No. 40. Free bathing with tepid water, or water cooler than the patient, accompanied by vigorous rubbing, will soon put the skin into a copious perspiration, if well covered afterward. As soon as free perspiration is well established, the bad odors on the breath show that the lungs are also striving to unload the foulness from the body. After this treatment is thoroughly applied and the infant still continues sick, the physician should be called in.

These home efforts at elimination are perfectly safe and reliable in the beginning of all infantile sicknesses, even to measles or scarlet fever.

Continual Dosing.

There is nothing more reprehensible in caring for children than the habit of dosing for every real or imaginary ailment or cry of these little ones. This dosing is usually something to move the bowels or something to make it sleep. If mothers would guide their actions in this matter by a careful study of the infant's stools, they would seldom do much harm, and certainly would have some foundation from which to correctly reason. With this guide they would seldom see any cause for dosing to make the child sleep. They would soon see from their unhealthy character that there was some disturbing agent present which prevented sleep. Either the quantity or quality of the food is the usual cause of irritation and wakefulness.

Dosing as practiced is merely covering up a bad result,

Improper feeding causes more sickness and disease than any other factor or agency in infantile life.

An infant is not improved by laxatives or sleeping medicines. These should never be given unless in emergency; they damage an infant when repeated.

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is persistently refusing to see the cause of the trouble, and is acknowledging ignorance of the true factor in infantile disturbance.

No class of children presents such obstinate disturbances to the physician as those that are being continually dosed. Usually they are cross and constipated, or suffer from a loose condition of the bowels, alternating with the constipated. Their digestive secretions have been so disturbed that their nutrition is very much impaired. They have not the firm flesh and blooming color of the vigorous, healthy child, and the continual dosing has so persistently held their digestion disturbed that they never have time to improve in flesh or appearance.

This overdosing is one of our heritages. It is too often the outgrowth of the desire to try something or do something, or be agreeable to the suggestions of suggestive friends who suggest something merely for the sake of suggesting, and because it looks wise to suggest; and also because, without suggesting, they would not be fashionable or kind. The poor baby has only to yell and bear it. That seems to be its fashionable vocation in this life, and its only recommendation among its acquaintances is its great crossness.

As this is the only way in which the infant can talk, are you surprised that it declaims with most emphatic yells against this ignorant experimentation of its ancestors, who thus play with its digestive health and future development instead of intelligently referring the sub-

Except in severe sickness, no medicines should be given to an infant but those which add to its digestion and growth.

ject to their physician, and thus giving the infant a chance for success in the race of life?

All dosing should have for its object to add more to the infant, or to prepare the digestive organs for successfully receiving more. This object must be kept steadily in view in all managing, directing, and prescribing for infants, else mothers will continue to perpetuate the bad spots in their children, which physicians daily find as obstacles in their recovery from illness in the future months or years.

Judicious Medication.

As physicians become older in the practice of medicine, it is notorious that they reduce the number of the medicines prescribed. They gradually realize that Nature has great powers of reparation, and that she will, in the majority of cases, be her own best physician if obstacles and errors are removed from her path. Under these conditions, prescribing for the sick is mostly observing the principles of health, and then using only such remedies as assist these healthy principles followed by Nature.

In the domestic circle there is a like necessity, and a few remedies can be used with great advantage when an indiscretion or error has been committed by the child or its attendant. This is often illustrated by the sudden necessity for removing an overload or an unsuitable one from the stomach or bowels; by the necessity of a warm bath to remove a chill or severe coldness of the extremities, thus equalizing the circulation of

Sensible dietary avoids the necessity for medication in most infants.

blood; by the necesssity of some corrective for the digestion where not enough food is taken to properly nourish the body, and also for several other conditions which are purely the result of errors committed suddenly and thoughtlessly, or allowed to grow gradually.

A few remedies are here considered and their uses explained. These are of vital necessity, and a proper knowledge of their use can do no harm; but on the contrary, may and will often do incalculable good among young children when judiciously used.

Castor Oil.

The benefits accruing from the use of this remedy cannot be enumerated. They are too manifold and well established to require repetition. As a "*relief*" to the overworked digestive organs, it is a grand success. It is a veritable new broom sweeping out all the superfluous and poisonous decomposed food in the alimentary canal, thus giving all those tired organs a much needed rest. Not only does it cleanse the irritated parts, but it heals them as well; and did we know enough not to repeat the disturbance there, its effects would be permanent. As a first remedy in almost any sickness it is reliable; but as a much repeated remedy in any one sickness, especially constipation, it is a failure.

Mothers must remember that in the feverish commencement of any sickness, all foods lying in the stomach or bowels at once commence to ferment or decompose, and thus develop poisons which enter the circulation and cause convulsions in some, headache and fever in others, delirium in many, and various other disturbances according

Always empty the bowels in the commencement of any sickness.

to the constitutions of the children. This demands the prompt use of the cathartic in the beginning of every feverish sickness.

Enema.

The use of liquid injections into the rectum has become so common in infants that it is being abused. While this treatment is required in many cases, and in the majority is far preferable to the administration of cathartics, yet enemas are frequently and commonly given where not required, and the doing of this often establishes the costive habit. If by their use we can avoid the abuse of cathartics, which should never be used without a distinct reason, then it is well to supplant the greater evil by the lesser one.

In the majority of cases, any warm liquid or mixture will answer the purpose, as the bowel usually commences to act as soon as distended with the fluid. Where repetition is very common, we sometimes find a tolerance established for this treatment, and the bowels will only respond to large quantities of water or stimulating mixtures. Where this is the case, strong soapsuds, weak solutions of common salt, glycerine, or sulphate of magnesia may be used. The strength is not important, as it is immediately expelled, or if absorbed can do no harm. At times, in obstinate cases, sweet oil and castor oil are used in the same way, either alone or in combination with the hot soap solution. Occasionally all these fail to stimulate the bowel to activity, the liquid being returned and no stool, or very little, coming with it. Commonly, in these cases, the writer finds this result is due to the

over-anxiety for a stool on the part of the mother or nurse, and the failure is due to an empty rectum. Generally, the treatment is successful in these cases next day when there is necessity for it.

As the liquid or mixture is always harmless in an enema, the quantity used will be determined by the response of the bowel. At first the mere contact of the rubber nozzle in the rectum is sufficient, but by frequent repetition the amount required will vary from a teaspoonful to a pint. No force should be exercised in using it, and a soft rubber nozzle, instead of a hard one, should always be inserted in the rectum. Commonly the soft rubber bulb, such as is used for the ear, is the most suitable instrument for this purpose. Care should always be exercised to invert this nozzle and expel all the air before inserting it in the bowel, as the injection of air commonly causes colic and at times severe pain.

Suppositories.

Another common stimulant to the rectum is the ordinary soap-stick. This is only a small piece of soap cut into shape like the end of a lead pencil and passed into the rectum, after wetting or oiling it. It soon stimulates the bowel to activity when first used, if properly inserted. The finger should follow it up till the first joint reaches the anus. The ordinary glycerine suppositories of commerce are more stimulating than the soap, and are used successfully in many cases, though some adults when using them complain of the irritation they cause. They act by causing a weeping and contraction of the bowel, and thus demanding the expulsive efforts used in regular stool. The

Figure 43. Soap-stick.

Constipation is seldom cured by laxatives. The food should be made relaxing.

utility of these is being much subverted by their abuse. They have followed the same worn path, much abused from time immemorial, by the unnecessary and injurious use of cathartics.

Medicated Enemas.

These are always used, if possible, in the empty bowel, or after first using water to wash out the rectum. Their object is to supplement the stomach when it fails or is insufficient for the required purpose. They are also used where, by the location of the disease, it can be more easily and successfully reached through the rectum. In medicated enemas and suppositories, the intention is not to move the bowels but to restrain them till the food or medicine placed in the rectum is absorbed. In some irritable, tender, or weak stomachs this method of feeding is resorted to for a limited time, in order to rest this organ and at the same time support the patient. In a limited number of patients this is very successful, indeed, as it keeps the patient alive till the stomach resumes its duty. In a great many it fails entirely of doing this temporary work, and in many it cannot be used for even once with success. Very commonly it is necessary to use some opiate, either in the enema or prior to it, in order to restrain the rectum from expelling its contents. As this treatment depends on the absorption of the food or medicine, it must be retained indefinitely or entirely without painful sensations to the patient. Beef tea, milk, and thin gruel or starch at a temperature of 98½ degrees, and completely digested, are the types of

food most commonly used. They are repeated in five to six hours, as the rectum will permit.

When it is desirable to use medicines in this way, they are dissolved in a small quantity of water, usually one to six teaspoonfuls, or an equal amount of thin starch. The total amount must be small, that it be retained in the rectum and quickly absorbed. As this practice is most applicable to abdominal affections of a painful character, where the use of anodynes in large enough doses to relieve the distress would or does cause nausea, it becomes a very valuable and successful method of giving relief. All enemas intended to remain until absorbed, should be made as small as possible, given at blood heat, and very slowly, so as not to excite the expulsive efforts of the bowel. If expelled soon, as commonly occurs in dysentery, they should be again repeated till the effect required is obtained.

Medicated Suppositories.

Medicated suppositories have become a very desirable and successful method of administering soothing and bitter remedies to children and adults who object to the dose, or who are unable for any reason to swallow it. Perfect constitutional effects are frequently obtained in this way for several days. Care must be exercised to have the suppositories well oiled, as their frequent repetition generally causes some irritation of the rectum and demands a change in the mode of administration.

Rectal Irrigations.

The use of water in the rectum to cleanse or cool the canal as far up as possible is commonly demanded, especially in the dysenteric irritations of hot weather. As it

Feeding by enema is unreliable. It can be used only for a limited time.

Save the stomach for food and use the rectum for medicine in infants with weak digestion.

is desirable to reach as high as possible, a rubber catheter is used instead of the ordinary nozzle. After being well oiled, this is passed slowly up the bowel, turning it around continuously that it may not become caught or stopped in the folds of the bowels. The warm or cold water, as ordered, is then allowed to run, distending the bowel freely, and is usually ejected as it is given. This requires preparation of the bed with a pad or rubber sheet to control the water as it returns from the bowel. In this treatment, large quantities of water are used, and the stream continued, slowly pushing the catheter farther up, till the requisite cooling or cleansing is obtained.

Small lumps of ice are occasionally used in the rectum for their cooling effect. As the sharp edges scrape and irritate, it is necessary that these lumps be held in warm water a few seconds to render them smooth before insertion. They should be made about the size of the ordinary suppository.

Real hot saline injections, made by adding one teaspoonful of common salt to a pint of hot water, are commonly used in the collapsed condition of any sickness to stimulate and warm the patient. They are as valuable in warming a cold collapsed child as the cold ones are in cooling a feverish child.

Digestive Assistants.

By this term is meant such remedies as are able to assist the digestive organs, or do their work entirely during a temporary inability. These remedies cannot be

By assisting the digestive organs you add bloom to the cheek and flesh to the body.

Perfect nutrition carries infants through long sickness without blemishes.

properly classed as medicines. They act entirely on the food swallowed, and only affect the infant by temporarily digesting its food. In this way the only possible result is a beneficial one, and their continued use for a few days or weeks must always tend to increase the infant's weight and strength through enabling it to consume and appropriate a greater amount of food.

There are many conditions where a judicious use of these digestive assistants (Remedy No. 43) is strongly called for. Let us look at some of them.

1. In the cross baby who suffers continually from colic, cannot sleep well, and has vari-colored, slimy stools; here the digestive secretions are not quite strong enough to digest the milk, and require assistance. This inequality may be due to imperfect digestive development, or an overly strong milk. Here, generally, the cross, colicky baby will be converted into a happy, playful one by using digestive assistants.

2. The pale, anæmic infant of one to three years frequently shows by its pale face, soft flesh, and general languor and listlessness that it is poorly nourished; also it shows these results as directly due to imperfect nutrition. Here the digestive powers are temporarily inactive and doing only one-half or two-thirds of their usual labor. It may, and probably is, due to the weak or feeble condition of the digestive glands, and the addition of digestive assistants at each meal will enable a larger amount of food to be consumed. In this way frequently the stomach and all digestive glands are strengthened

Digestive assistants secure a good appropriation of food by weak digestive organs.

and enabled again to perform their usual and regular labor, preserving the healthy color of the face and the usual hardness of flesh.

3. In the beginning of many acute sicknesses, and all through the course of many wasting illnesses, there is great necessity for fortifying the enfeebled digestive power by using these assistants to the temporarily disabled organs. As they can never do other than good, they should be commenced promptly and continued as long as the wasting process of disease is present. When Nature reacts, and the illness is passing away, then they may be discontinued with returning or returned health and strength. A judicious and persistent use of these assistants will carry many an infant through a trying sickness, who would otherwise succumb to weakness from imperfect nutrition.

There are many other conditions in which it is necessary to call in all the forces possible to save the health and lives of our little ones. It is not necessary to enumerate them. The three conditions mentioned above will show some of the opportunities ever and always presented for watching most carefully the nourishment of the infant.

In other words, no matter what we do for the sickness, be sure we take good care of the child; and when apparently the child is not sick but only complaining and cross, we often find the greatest necessity for looking carefully to its better nutrition.

A child poorly nourished is not in a safe condition, as it easily contracts infectious and contagious diseases, and cannot well resist them.

Opiates save hundreds of lives for every one addicted to the opium or morphine habit. Children never learn this morphine habit.

Anodynes.

These are used by a great many mothers for various reasons. They are mostly given to cross or colicky babies, who are continually in distress. As all these anodyne mixtures contain opium in some form, this practice is to be deprecated. While their occasional use in extreme cases of suffering is desirable and beneficial, the tendency is toward too frequent use, and resulting constipation. There is no fear of fastening an opium habit on a child, but certainly a lesser degree of damage and imperfect development may be established by excessive use of these remedies. The tendency is always to overlook, and thus perpetuate the cause of the child's distress when the anodyne temporarily relieves the bad or painful result. The rational treatment is to seek out the cause of the child's disturbance and avoid a repetition of the same.

Many people are unnecessarily opposed to the use of an opiate even temporarily, where the severity of the sickness is damaging the child, and the use (not abuse) would give relief till the error or sickness can be corrected or relieved. There is no more valuable remedy than a properly selected opiate in skillful hands, and when judiciously used never does any harm. It is always the habitual and useless repetition of the remedy that is to be deprecated.

Hot Applications.

These are used frequently to relieve pain or swelling at any and all parts of the body. It is well to remember that the delicate skin and nervous timidity of the child will not allow of as great warmth as can be used

Heat should be applied in the dry form whenever this is possible.

with the adult. This applies to all irritants also, such as mustard and blisters. Hot applications are commonly made either dry or wet, and in different forms as indicated. Where they can be used successfully in the dry form, it is much preferable; but for some irritations, the moist applications are necessary.

Heat applied in the dry form has the advantages of lightness, more continuous and steady application, less labor, more rest, dryness of the clothing, and greater comfort to the patient. The common form of heating woolen cloths answers a good purpose where only short applications are needed. The most perfect and continuous hot application is the rubber bag filled with hot water. This is the form which readily gives the temperature needed for hours in succession without changing; but there are parts of the body and some little patients where so large an article, or so heavy a one, cannot be applied. In these situations small meal-bags should be used, made of cotton the size required and filled with hot corn or oat meal. When cool, these can be heated in the oven or on the hot-water bag and reapplied. They have the advantage of lightness and pliability, and can be fastened on where placed. This is important in many situations, as upon a painful ear, where the hot-water bag is inclined to slip away. When filled with these meals no unpleasant odor is emitted, and they can be used indefinitely. Many other heated articles are successfully used in emergencies, but the lightness and pliability of any article always give it an advantage.

Blisters.

These are used to produce redness of the surface, and

Always select the infant's diet in May, and allow no changes in the quality of it till October. This secures yellow stools and good health all summer.

very careful watching is needed to prevent greater injury to the skin than is required. All irritations should be used as sparingly as possible on infants, lest a sore be produced that will delay in the healing process. While a fly blister is placed for the express purpose of producing a sore that will remain open for days, yet care should be used to avoid a sore that will leave a mark after it. As soon as the skin shows red it should be removed, as it blisters afterward. This may take from two to three hours on the child, or seven to eight on an adult. In some positions where the skin is soft and thin it will not take so long. The surface after the blister is removed must be dressed with some heavy, slow drying unguent, such as castor oil or lard. Vaseline is frequently very irritating, and should not then be used on raw surfaces.

Mustard when applied to children must be greatly diluted—one teaspoonful to eight of flour—and removed early. A very slight blush in the skin demands its removal, as the blister or sore produced by mustard too long applied is very painful and slow to heal.

Leeches.

The application of leeches is occasionally required in acute diseases. They generally cause fear in children when seen. The slight pain or smarting they produce by their bite is very much aggravated when they are also seen, as the little one dreads the sight of them. By cutting a small hole in the bottom or top of an ordinary pill-box and putting the leech inside, the hole can be placed in

Never use a rubber tube on an infant's feeding bottle. Danger, like sin, lurks in dark places.

close contact with the skin, and the leech is then limited to this spot, where it will soon fasten itself. The cold, crawling feeling on the skin while looking for a place to bite, is also avoided. Leeches cause little pain, and in this way several can be applied at once when required. As the bites sometimes continue bleeding too long, the mother may be required to control this. Pressure with the finger, continued for a few minutes, will always check it.

Antitoxin.

This remedy is so valuable, that, with the old physician, words fail to express his grateful appreciation of its wonderful curative power in diphtheria. Only those of us who have been compelled to be present and witness the grief and distress of parents, losing not only one child but two or perhaps three or even four of their dear little ones from this dread malady, and then finally see the parents themselves stricken with it, can fully appreciate the great blessing this remedy is to humanity. Instead of many thousands dying yearly in our cities, towns, and country places as formerly occurred, when we now hear of such a death, we wonder if the case was treated with antitoxin. If treated with this remedy, we ask next, Was it used the first or second day of the sickness before other poisons from the throat had entered the blood circulation? If the remedy was used during the first two days, then the question arises, Was it used freely enough?

Statistics show that if used freely during the first day there are only five per cent. of deaths. If used freely on the second day there are about eight per cent. of

In diphtheria and false membrane croup always use antitoxin early.

In all sore throats where there are white patches use antitoxin at once.

deaths. If used freely on the third day there are about sixteen per cent. of deaths, and later than this day shows the blood of the patient often thoroughly poisoned and the benefits from antitoxin correspondingly reduced.

The inference then is, watch for sore throat in all sicknesses of children, and have the physician called as soon as you find one, so the child may have the benefit of antitoxin treatment under the five per cent. mortality rate of the first day. If you are very prompt and the treatment liberal, you will avoid an acquaintance with the undertaker.

Head Affections.

The care of an infant's head in the majority of febrile affections is a first duty in nursing. As head trouble comes in secondarily to other sicknesses in most cases, the nurse or mother has a great opportunity to detect features which indicate disturbance at this point.

Too great importance cannot be attached to this subject, and too much care cannot be exercised in watching for the first indication that may point in this direction. Where this is not done early and considerable advance in head trouble has been allowed before detection, the chances for recovery are materially reduced.

During the warm season of the year particularly, a very large proportion of the deaths in infantile troubles is preceded or caused by head complications.

Suspicion should be aroused by any departure from the natural condition or habits of the child, not clearly

Infants usually show head disturbances in serious febrile diseases before dying. Parents should always expect this and keep the head cool by bathing it frequently with cold water. This is never injurious in any sickness.

explained by the sickness; and as these changes appear in all kinds of feverish disturbances, there is no sick infant who can be considered safe from them.

As the early detection is at times difficult for even the most experienced physician, the nurse or mother need have no timidity in expressing her fears to him, as he is always on the alert for this complication.

The symptoms which should create alarm are numerous. The most marked are changes in the sleep, either too much or too little, mostly the latter; restlessness of the head, headache, moaning, sudden crying out in the sleep, delirium, listlessness, lack of interest in the usual surroundings and toys, indifference for drink or food, voracious thirst, sighing, irregular breathing, obstinate vomiting or constipation, nervousness, excitability, heat in the head, coldness of the extremities, staring, cross eyes, and very many other conditions which may properly be classified as unnatural.

The importance of this latter word "unnatural" as applied to infantile conditions cannot be overestimated, and where it applies to a sick child, it demands the most careful and persistent examination till a satisfactory solution of it can be obtained. Too often this solution is found in the head. In fact, no person can have the charge of a sick child and feel free from the possibility of this complication. Particularly does this tendency apply in hot weather and to some families in whom all the children have convulsions when febrile from any cause, even to simple cold or overeating.

Nervousness, wakefulness, loss of sleep, excitability, trembling, hot head, indifference, great thirst, cold feet, and unnatural conduct indicate head complications.

In children's sicknesses, parents should always look for danger in the head.

The early, free and judicious use of cold water to the head, and continuous gentle massage with the applying of it, will never do any harm, and commonly will prevent brain trouble or give relief sufficient to induce sleep and comfort till the physician prescribes. Here let me again impress on mothers the great importance of persistently watching the head, no matter where the particular fever or sickness is located.

The large immature brain is very susceptible of secondary sympathetic irritation due to toxemia, or stimulation from any distant point in the body. In these cases, cold to the head, cooling drinks, no food, quietness and general bathing always contribute to good rest and sleep, which are absolute requisites for recovery from febrile or toxemic disturbances.

The bowels should always be kept moving, and enough water given regularly to secure a free flushing of the kidneys. Activity in these organs greatly assists in diverting this tendency from the head. For this purpose Remedy No. 40 may always be given with advantage during any other treatment.

Eye Affections.

Diseases of the eyes require specially prompt attention, as neglect or oversight for a few hours has often caused the total loss of these organs. Where any discharge of pus shows, especially in newly-born children, the physician should be called at once. In the meantime, exclude the light from the room, bathe well and frequently with

A sore eye in a newly-born baby demands immediate attention to prevent blindness. An oculist should always treat it when pus appears.

hot water and apply some simple ointment or vaseline to the edges of the lids so that they cannot gum together and retain the poisonous discharges. All discharges from the eyes should have regular and constant drainage and cleaning. Light should be excluded by living in a dark room.

Diseases of the Throat.

Early knowledge of throat affections assists greatly in their proper treatment. Frequent examination of the throat is an absolute necessity in the beginning of all febrile sicknesses among children. This should always be done when a child shows any change from its normal healthy condition. Frequently this omission will allow dangerous diseases to pass unnoticed for days.

Many children will deny any trouble there to avoid having a spoon or depressor placed on the tongue in examining them; others become too stupid from the fever or are too young to know where the disease lies, and so make no complaint about this part, even though extensive and dangerous changes are there present.

In examining the throat, the tongue must be well depressed so as to see the throat clearly in a bright light; and any examination short of this is unreliable. All white spots, swelling of tonsils, and bright redness indicate disease requiring attention.

Until the physician prescribes, you can apply cold compresses externally, and give warm or cold drinks internally as demanded by the child. No restrictions are needed in the diet, as these children will not eat. They should have all the sleep possible. Sleeping and

Every mother should practice the infant in showing its throat while well. She will then easily see and recognize disease when it appears.

An infant's throat or mouth should never be swabbed, as this does more harm than good. Internal treatment is needed always.

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eating well are always desirable, as these generally indicate a light attack.

Swabbing the throat should not be attempted, as it injures the patient, causes pain, and increases the disease. Children old enough to gargle the throat may do so with warm water and soda (Remedy No. 55). This should be done every three hours while awake, and fever mixture (Remedy No. 46) given internally.

Where any white spots are seen in the throat, a physician should be called at once, as these indicate tonsilitis or diphtheria.

Mothers should practice examining the throats of their children while well, as this causes no hurting; and children thus taught will soon be able to show the throat without the use of a spoon. These children when trained have no fear of the physician or mother in sickness, and allow this examination without the usual resistance.

Mothers practicing this maneuver on their infants soon become familiar with the appearance of the healthy throat and readily detect the diseased one.

Lungs and Bronchial Tubes.

Coughs are mostly due to irritation of the bronchial tubes or lungs in infants. Most commonly the irritation is confined to the upper part of the tubes. Here frequently we have an unavoidable trouble, in many children, who have successive attacks of bronchitis dur-

Coughs, without fever, are seldom dangerous in children. These children should be kept in a warm atmosphere all the time.

Tepid baths allay the fever in lung diseases. They should be repeated as often as is needed to cool the infant and give rest.

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ing the cold weather. While these might possibly be avoided by keeping the child in the warm house atmosphere, there would then be danger from the debilitating influences of confinement.

It is desirable to avoid the excesses of cold and wind, but in moderate weather, by proper clothing and protection from the wind, infants over two months old can safely be taken out for an airing. It is important to remember always that the cold air passing into the lungs necessarily exposes this part to outside temperatures, and the use of a thick veil where possible is a decided protection in warming the air at each inspiration.

When once a cold has been contracted and cough follows it, the necessity for continuously breathing warm air cannot be overestimated. Such children must be kept in a warm room, night and day till all febrile symptoms have completely subsided. Exposure in this condition tends to increase the amount of surface irritated, and thus add pneumonia to the bronchitis.

Warm drinks and tepid baths allay the feverish condition and thus lessen the cough by loosening the discharges and promoting perspiration. Coughs generally improve if the skin is kept in a soft, moist condition, but a chilling of it causes a like result on the tube or lungs. Thus is it important that the child sleep in as warm an atmosphere at night as it occupies in the daytime. The common practice of reducing the heat at night or going into a cooler room for sleep effectually retards improve-

The cotton jacket is preferable to the linseed poultice in lung diseases. Hot poultices should be used when there is acute pain.

ment. An equable atmosphere, regularly renewed through adjoining halls or rooms, is an absolute necessity in caring for all these lung and tube disturbances.

Poultices are commonly applied, and with benefit in many cases of fever and distressed breathing. Where used they should be made on a band long enough to encircle the whole body and fastened together at the ends and also over the shoulders. This maintains them in proper position, and if made soft enough with boiling water and well mixed with vaseline or lard also, they will remain soft and moist for six or eight hours without changing.

Many prefer the application of a cotton wool jacket (Remedy No. 78), well covered with vaseline or oil instead of the poultice. Either one is a good application. Where a slightly stimulating dressing is desired to redden the skin, camphorated oil, or a small amount of mustard or turpentine, may also be added to these dressings.

In the early stages of lung troubles where some pain is present, very hot poultices with mustard dressing and repeated every hour or two will give more relief than the cotton jacket. As the poultice may be applied warm enough to stimulate the surface strongly, it has more decided medicinal effect than the cotton jacket; but when the first acute stage is over, the latter is less changeable as a dressing and maintains a more equable surface temperature than the poultice.

The body under the cotton jacket should be freshly oiled twice daily with Remedy No. 84. Patients requiring such

Children showing any heart disturbance, or distress in the chest, require perfect quietude and prompt medical treatment.

dressings should have medical attendance also. The writer finds the regular rubbing twice daily, with Remedy No. 84 an advantage, or preferable to these jacket dressings for reducing fever in these cases.

Heart Diseases.

A very popular and significant, but not intelligent expression, is "Heart failure" as commonly and promiscuously applied. It is applicable to any and every serious form of disease, inasmuch as all necessarily die with heart failure, and could not die without it. But this does not explain the cause of heart failure, which in most cases is only a result of other serious complications.

Young children suffering from primary or genuine heart diseases require great care and attention. Children afflicted in this way do not show the distress and suffering that adults do with an equal amount of disturbance. The acute affections of the heart are not so common or easily recognized as are those of the lungs, consequently they will not demand so much attention.

In the chronic forms, where palpitation and shortness of breath prevail, attention will be most required. Here we have complications, giving distress in direct proportion to the motion or activity, and also showing a strong tendency to fainting on sudden upward movements from the horizontal position.

The main indications for care in most heart disturbances point to avoidance of excesses in all directions. Running, overeating, extreme excitement, fever, colds, especially bronchial ones, mounting stairways and hills,

Growing pains are an evidence of that rheumatic taint which is the foundation of nearly all future heart diseases.

Irritation of the heart gives no pain to the child. Parents should always be on the watch for heart palpitation and short breath.

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and lifting weights, are all dangerous, as they put an extra load of work upon the enfeebled organ.

Where danger arises in this organ, its action is so sudden always that little opportunity is given for treatment. The avoidance of trouble by quietness constitutes the principal part of the care and nursing.

Growing pains, so called, are commonly early manifestations of a rheumatic weakness that leads subsequently to derangement of the valves of the heart. Such being the case, it behooves nurses and parents to give these symptoms such thought and attention as will eradicate this tendency. Such patients require careful medical treatment and clothing warm enough to protect the skin from any chilling influence. This clothing must be woolen for the greater part of the year.

The early symptoms of heart disease commonly appear while children are apparently in good health, and are generally very difficult to detect. It is this silent and painless beginning which is so deceiving and demands such vigilance from parents and nurses to prevent that damage to this important organ which when once established can never be eradicated, and in most cases gradually becomes worse with increasing years.

All patients who in childhood show the rheumatic tendency must be carefully protected, both in clothing and exercise. It behooves mothers to consider these indefinite small pains in joints and limbs as warnings that just such small sore spots may occur in the heart

Parents should always remember that rheumatic irritations, even when slight, are likely to be repeated and cause permanent damage to the heart.

itself, and make no disturbance recognizable except to the careful, investigating physician. Were such spots in the heart as painful as they are in the joints, fewer of them would be passed over unnoticed, as they are at present. Parents require to be fully educated on this point, that they may be more on the alert with their children.

The Abdomen.

As all acute inflammations in the abdomen produce pain and tenderness on pressure or exercise, they are easily recognized. The abdominal organs press directly upon each other, so you will find it an absolute necessity in sickness of this part to secure quiet and rest both by the horizontal position in bed and avoidance of all such efforts as will cause friction or pressure of one part upon another. The walls in this part of the body are soft and elastic, leaving the internal organs more exposed to outside pressure when diseased, than are those in the thoracic cavity.

After having obtained all the relief possible by position and quietness, it behooves you to remember that the duties performed by the abdominal organs are increased or decreased by the amount of food and drink which the child obtains; also that pressure is increased and decreased in this way in like proportion. Most generally, a careful adjustment of diet to the absolute necessities of the patient is demanded in all acute abdominal disturbances.

The outside applications demanded to relieve pain and distress will frequently be found an irritation by their

A child with any abdominal trouble should have little food. Absolute rest in bed is demanded with every case. Inflammation of the abdomen gives pain on pressure.

weight alone, and it will then be necessary to use light, dry meals or cloths in making the hot dressings needed. In chronic abdominal affections, these difficulties are not encountered, as there is little tenderness or soreness in old irritations.

Heart Failure.

This is an expression commonly used to explain a sudden or unexpected death. It is very fashionable, and like most fashions, is of recent growth. The writer never heard the expression during the first twenty-five years of his medical practice; but many times he would have been grateful, in trying and fatal cases, for it or any explanation that satisfied so many and said so little.

What is *Heart Failure?* It applies to a healthy as well as a diseased heart, and means usually a heart that is *tired out*, and *must rest*, because it cannot work any longer. Here, resting means death.

The heart becomes tired, like its owner, when it is compelled to run at a high speed for a long time. This occurs in fevers and severe inflammations.

The heart becomes tired in wasting diseases, where it is poorly fed or nourished, and yet compelled to run rapidly instead of beating slowly, as in health.

The heart also becomes tired and fails where it is compelled to shove heavy loads of blood through obstructions and up hill, as in bronchitis and pneumonia.

These are only a few of the sick conditions which must inevitably cause heart failure, and which the experienced physician is always looking forward to in serious sicknesses.

CHAPTER XII.

Introductory.

The object aimed at in the following chapters is to give mothers and nurses enough information to enable them to act intelligently with their children in all forms of sicknesses and emergencies. It is intended to equip them intelligently, so that they can properly care for the small disturbances incident to child life, and know correctly when the services of the physician are required.

Beyond this the intelligent mother or nurse never desires to tread, and will refuse to do so, save in those situations where the services of a physician are not quickly obtainable. If the following pages are such as to accomplish this result, the object of the writer has been attained.

Before entering on the consideration of diseases, it is well for mothers and nurses to understand the different symptoms of the diseased condition and their value. As the writer commonly finds parents having erroneous ideas of the importance of these, it seems well to consider their significance, as well as this can be done in a general way. This is done to assist parents in recognizing serious complications, and to avoid unnecessary alarm in mild disturbances.

SYMPTOMS AND THEIR VALUES.

Fever.—This is present in most infantile diseases. It usually runs from the normal temperature, 98½ degrees, to

105 degrees. Below 103 degrees is common and mostly free from danger; 103 degrees to 104 degrees is a serious condition if continued many days; 104 degrees to 105 degrees is critical, and must not be allowed to continue many hours.

These temperatures can always be reduced by free bathing with water below 95 degrees. The colder the water the more powerful is it in reducing the fever. Always bathe the head, and all other parts if needed. Bathe long enough and repeat often enough to keep the temperature in safe limits—below 103 degrees. This can be safely done in all diseases.

Pulse.—The pulse represents the action of the heart, and in speed moves up and down with the temperature, except in affections of the head, where slowing of the pulse indicates increasing danger.

The pulse at birth beats 135 to 140 per minute. It decreases with age till the adult pulse reaches 72. Increased frequency indicates increased danger in most sicknesses. Irregularity in beats with smallness of size still more increases this danger. When the heart is loaded too heavily or driven too fast, it falters, gradually tires out and stops. This is the greatest source of danger, and is what is generally meant by heart failure.

Respirations.—At birth these count forty-five per minute; in adults they fall to sixteen. Respirations increase always as fever rises; but their greatest increase is shown in bronchitis and pneumonia. The faster an infant breathes, the greater is the danger; but at two years old they commonly breathe eighty times per minute, and yet recover when suffering from pneumonia or bronchitis.

Delirium.—This is common in many feverish children during the night or when awaking. Transient delirium

is not dangerous; but the continuous kind is very important and serious. Allowance must always be made for the child's usual mental condition when sick. The delirium which passes away when the child is questioned is not usually dangerous.

Delirium generally accompanies high temperature, 104 degrees to 105 degrees; but the children in some families always have delirium when they have fever, even of a low degree.

A low, muttering delirium very commonly accompanies the weak typhoid state.

Headache.—This is generally present in the feverish condition; when the stomach is overloaded; after too much exercise; in meningitis; after too much study; in crowded rooms; after exposure to the sun; missing meals, and drinking too freely of cold water while very warm. Headache in school children frequently results from eye strain due to imperfect vision. Where it is very persistent and does not yield to treatment, it is frequently a serious symptom, pointing to future brain complications.

Crying.—In infants during the first few months this is a healthy athletic necessity, needed in expanding the lungs, strengthening the muscles of respiration, and also the heart.

Some children cry too much and from very slight cause, even to the extent of screaming. The source or cause of this is generally found in the digestive organs, and is due to overfeeding or unhealthy food. Nursing mothers can usually trace it to their own food, exercise or mental condition. In hand-fed infants, errors in the quality of the milk or the amount fed will usually explain it. The mother or nurse should look for gas, foul odors, green colors or slime in the stools. Where the stools

show none of these to explain the crying, the ear should be examined, by pressing close around it, for soreness. If this fails to show any tenderness, food or drink should be offered to the little one. Nothing will cause such persistent crying in young infants at night as earache or hunger. Older children can designate the cause of suffering, and in them toothache also causes much crying.

Young infants do not shed tears, and these are considered an evidence of much pain, but little danger.

Gas in the bowels causes much crying. This is due to indigestion, and the crying ceases when the gas escapes. Infants with much gas, or foul odors, cry a great deal.

Every crying infant should be undressed to see if the clothes or pins are hurting it. Then look carefully in the mouth for sores or redness of the lips, tongue, or gums.

Vomiting.—When this follows feeding, it is mostly due to the amount of food received. If persistent after small as well as large meals, it is due to the quality of the food.

If accompanied by fever it is due to indigestion caused by the food or some other concurrent sickness. Vomiting frequently ushers in febrile diseases, such as scarlet fever, measles, or meningitis.

Stools.—Frequent stools when natural in odor, color, and consistence are healthy and right. Stools vary in number in different infants, but should not vary much in the same infant.

Frequent stools accompanied by pain, foul odors, much gas, unusual colors, undue liquidity or slime, are unhealthy and require attention.

Constipation.—This is very common, causes much annoyance, some pain, and little danger. Generally, it worries the mother or nurse more than it injures the

child. An infant is healthy and safe in the natural stool condition, whether that be one stool in one day or in three days. The general habit of the infant is not easily corrected until after weaning, when the food is completely changed and the child has greater exercise. There is generally undue anxiety on this point in all families.

Nervousness; Trembling.—These usually accompany fever and point to approaching convulsions. Cool bathing should be promptly applied, and Remedy No. 54 given immediately.

Wakefulness in healthy infants is usually due to the kind or amount of food. It occurs also after excitement or interruption of the usual regular habits.

In delicate infants, or those improperly nourished, it is due to starvation or irritation of the nerve centers. The great preponderance of nerve tissues early feels the effect of nutritional errors. Sunshine, open air, and properly regulated diet correct this wakefulness in time.

Too Frequent Urinating.—This should always be traced to some soreness, or error such as a long foreskin, in the genital organs. When due to this it is persistent until the cause is removed.

Occasional attacks of frequent urinating are due to the quality of the urine, following a change in the food.

Persistent frequency is accompanied by some pain, light or severe, and the cause exists in the bladder or the urethra—the tube carrying the urine from the bladder.

Absence of Urine may be due to reduced secretion, or the retention in the bladder of a great amount. Bathing of the genitals with warm water will usually cause it to flow out quickly and give relief to all pain.

Foul Breath.—This is mostly due to soreness of the mouth or throat, and should receive prompt examination.

Frequently it is caused by a foul stomach from over-eating, or to bad teeth in older children. The cause of this should always be ascertained to exclude a dangerous sore throat, such as appears in diphtheria or scarlet fever.

Drooling.—This is caused by the saliva trickling out of the mouth. In young infants it is natural; but when accompanied by a foul breath, it is due to soreness of the mouth and lips, and requires treatment.

Starting in Sleep.—This is very common, especially with some children, even the healthiest. It is difficult always to assign the cause of it, but it does not indicate any disturbance requiring attention.

In sick infants who are taking anodyne medicines, this symptom is very marked and does not point to any definite condition of sickness.

Cough.—Infants cough from many causes, which may be in the nose, throat, tubes, lungs, stomach, liver, or bowels. The danger from coughs in young infants applies only to those of recent origin. A long existing cough is seldom dangerous or even serious, and always passes away. A recent one may be fatal. As children grow older, this rule does not apply. Those over two years old may develop tuberculosis and show a cough of a long, serious character. As children grow older this occurs more frequently.

Perspiration.—This is not a common process in young infants, but shows on the forehead while nursing or sleeping in warm weather. An infant who perspires very much, especially on the head, is usually over six months old and improperly fed. If the diet is not quickly changed to correct this, rickets or scorbutus will likely show in the little infant and retard its growth. A properly changed dietary will correct this, but medicine will not.

Slow Teething.—This, in some families, is the natural process. In most cases it is due to imperfect nutrition through faulty or weak food. This applies to both nursed and hand-fed infants. Many mothers retard the infantile growth through persistence in nursing when their milk produces foul stools. The same condition often appears in hand-fed infants. Such cases grow teeth and other bones too slowly for good development. The diet should always be changed in these cases.

Analysis of Unhealthy Stools.

Foul Odor.—This means decomposition of dead animal matter—eggs, meat or milk—in the body, the same as foul odor means rotting animal matter out of the body. Then the food must decompose instead of digesting. Is that so?

Yes, that is it exactly. There is not enough digestive fluid in the stomach to cure or digest that amount of food. Less food should be given, so that the child can secrete enough digestive fluid to properly cure or assimilate it, and thus prevent this bad odor. Perhaps you may have to reduce the proportion, or even remove entirely the animal food for a few days till all bad odors disappear, giving only starchy diet till good digestion is re-established.

Can the baby live on starchy food, Remedies Nos. 2, 4 and 5, alone? Yes, for a few days; but you will have to flavor the rice or barley water used, with cream and sugar, or the infant will not take it. As the stools improve, the cream and milk can be slowly increased again as the odor of the stools allows it.

Green Color.—What does that mean in stools? This color always means indigestion in the infant, whether it

be the copious green watery stool of cholera infantum, the foul or green, pasty stool of rickets, the slimy green stool of dysentery, or the occasional green stool without other unhealthy change, in the healthy nursing infant. It all means that there is a lull or check in the digestive power, and less, different or no food should be given for some time.

Watery Stool.—What does that mean? A watery stool may be green, slightly yellow, or almost clear in color. These stools are generally dangerous to the infant, as they indicate a poisoned condition in the infant's bowels. This water of these stools is the serum drawn from the blood. Nature is using this to dilute the poison and wash it out rapidly. She is in a hurry lest the child be poisoned, and she is using plenty of serum water to remove the poisonous stuff before it is absorbed into the blood and causes brain trouble. The danger is about in proportion to the size and number of the stools, as these infants melt away very rapidly.

Pasty Mixed Colored Stools.—What do they indicate? These stools are found in unhealthy or unthrifty infants. Generally, these infants have been suffering from bad feeding and poor digestion for a long time. They are cross, restless, and have a yellowish bad color, and show a strong tendency to be rickety as they grow older. They do not thrive; they only exist.

Slimy Stools.— What causes a slimy stool? If you have a cold in the head, you expect to have a running nose. This is called catarrh. The same condition exists in the bowel, when it is inflamed from any cause. The discharge is at first thin, but soon becomes slimy and thick, like that emitted from the nose. As this discharge becomes thicker, the inflammation subsides and the

bowel heals. The danger here is in proportion to the amount of this discharge daily; not necessarily in proportion to the frequency of stools. The stools are smaller as they become more frequent. There may be three or four in an hour, but very small; or only three or four in the day. Unhealthy or unsuitable mother's milk, overfeeding or bad food, will commonly cause stools of this character.

Bloody Stools.—What do these mean? Blood in the stools of infants goes with the slime. The stools may be all blood or only very little specks of blood; the rest being slime and a little fecal matter. This blood comes from the rupture of small inflamed veins in the bowels. In these attacks the blood appears last and disappears first; the slime gradually lessens after the blood stops. The danger here is also in proportion to the amount of blood lost, not the frequency of the stool. There may be a stool every twenty minutes, but it is very small—only a teaspoonful or less.

Gray or Clay Colored Stools.—What causes them? Clay colored stools indicate a sluggish liver, or an infant suffering from jaundice. This is seen mostly in children four to eight years old who have fed irregularly, or taken unsuitable food. They usually suffer from fever and loss of appetite, but recover when the fever is checked. These children are always costive during these attacks. They should be fed principally on a milk diet; very little starch is allowable till the fever and jaundice depart, and the stools show the yellow color of healthy milk digestion.

Loose, Fatty Stools of a Light Color.—What are they? Children having these stools fail very rapidly. They do not have many stools, but this fatty or oily character

shows that the food is partly digested and then thrown out. This loss of food and nourishment explains the rapid waste in the infant. Change of diet usually cures these cases; but it must be given in very limited quantities until the stools are healthy in character.

Dry, Hard Stools.—What causes them? These are most commonly due to an absence of fat in the food. Fat is the natural lubricator of the bowels, and should be increased in these constipated children. The diet here is too slack of cream or butter, and will be found composed mostly of starchy food or milk robbed of the cream, as in condensed milk and many proprietary foods. These children should be fed butter, cream, and fat of meat.

Brownish, Watery Stools.—What is the difference between these and green watery stools?

Very little. The brown color is not common, and when present has branny scales floating through it. These stools are very offensive, showing that the bowel requires rapid disinfection to correct the decomposition raging in it. The diet must be lessened and also changed to secure yellow stools, and the bowel disinfected with chlorate of potash or carbolic acid.

Lumpy Stools.—What causes this condition? Only a careful inspection in a good light will explain the character of the lumps. Use a match to break or crush the lumps and see what is in them.

White curd shows too much cheese or casein in the milk. Lumps of food show overfeeding at some meal. Small lumps of slime show a sore or inflamed spot in the bowel. These often look like lumps of curd till crushed, when they are seen to be fecal matter covered with slime, and usually of a yellowish-white color. This is the result of improper food or too much food.

Can Stools be Read by the Eye Alone? No; the eye, nose, and fingers in a bright light are all required for correct reading of the stools and sickness. No mock modesty is here allowable, for "by their *stools* ye shall know them."

Recurring Sickness.

The disposition to returning sickness in a child is one of the greatest sources of annoyance to a physician. Experience shows him that this is liable to happen from different causes; but the two most common reasons are, unhygienic surroundings and imperfect nutrition. Of these two the latter is the more common and important factor in producing recurring sicknesses.

Unhygienic Surroundings.—These cover anything objectionable *in the house*, or even *outside of the house.*

Inside the house we find moisture the most potent factor. Leaky roofs, wet cellars, and broken windows supply the necessary moisture when added to the filthy dirt usually or commonly present where such dilapidation and neglect are seen. Children living in such surroundings are liable to the worst forms of any sickness, and with difficulty recover, to be again taken down with the same or some other form of sickness. Throat, lung, and bowel troubles are very common, of the worst form, in these damp houses. When dirt is added to this it is difficult for children to keep well, unless they run outside a great deal.

Houses placed in damp localities, where sun and wind cannot penetrate freely, are always unhealthy. Houses built on ground without cellars are not as healthy as those with cellars, well drained. Houses with cellars should be so drained that no moisture can percolate through the ground or walls into the cellar. All cellars

should be cemented, and where this does not exist the windows should be left open to allow perfect ventilation and drying at all times. Any form of moisture under a house is a continuous source of danger to the inmates, particularly to the women and small children, as they breathe this contaminated atmosphere nearly all the time. They will have frequent recurring sicknesses.

Imperfect Nutrition.—This is the most common cause of recurring sicknesses in infancy. In itself it is a most serious sickness, as it keeps the blood current continually adulterated with unhealthy products of imperfect digestion, which flow continually to the brain, heart, lungs, and all other internal parts, keeping them in a never-ending disturbed condition.

The kidneys in these cases are continually taxed in their efforts to purify the blood, and were it not that they have capacity far beyond the necessities of health, most of these children would die of diseases of these organs.

These imperfectly nourished children have little natural resistance to sickness through the unhealthy, weak character of their blood. They contract all the prevalent forms of disease, and offer little resistance to their inroads. The consequence is that the mortality is high in such cases.

The only safety for such infants lies in a removal to the country, mountain, or the seaside. As these infants are always in more danger during warm weather, it should be made a rule to move them to a cooler climate. It is often amazing to see how rapidly delicate, poorly nourished children will improve with such a change.

When medicines show little lasting improvement on even the youngest, such a change will generally work marvels in the child's digestive power, and add pounds of

good flesh to the weight where ounces could not be gained before by the best medicinal treatment in the city.

Parents should always send their delicate children out of the city before the hot weather comes. Put them where little clothes and less face washing and shoes are required. Let them enjoy the freedom of the farm for a few months and such improvement will be established as will last for years if the pre-existing conditions are always afterwards avoided.

Parents must remember that causes able to produce sickness once, will be able to perpetuate it; and also able to reproduce it in most children.

This fact is continually disregarded, with bad results, in patients suffering from tuberculosis and other chronic diseases. Such patients should always be fortified, with cod liver oil and an iron tonic, such as Remedy No. 60, when they are compelled to return to their original home. In connection with this they should live out of doors in the sunlight and fresh air as much as possible.

CHAPTER XIII.

ACCIDENTS AND EMERGENCIES.

Cuts and Torn Wounds.

Cuts or scratches which do not pass through the deep skin never gape, as the lower strong part of the skin prevents this. Generally a cut or tear of this kind will leave little or no scar, and only requires a clean antiseptic washing and dressing, with Remedy No. 94, to make a perfect recovery. They should first be washed in boiled water, which has been allowed to cool enough to use. Clean muslin or absorbent cotton should be used for this washing. After being thoroughly cleaned with the hot water, a thick pad of muslin or absorbent cotton should be soaked thoroughly in a boracic acid or bichloride solution (Remedies Nos. 94 or 96) and applied on the wound and for an inch all around it also. Over this a thick layer of absorbent cotton should be placed, and all bandaged neatly, fastening the bandage securely, so it cannot slip off, thus allowing the wound to be poisoned, and delay the healing. The pad, if thick enough, will remain moist for half a day. When dry it may be moistened again, and especially should this be done if it slips off the wound. If properly cleaned and bandaged, small wounds will heal with one dressing, which need not be moved for three or four days. Every dressing should be treated the same as the first one.

Wounds which gape are deeper and usually pass through the whole skin. These should be drawn together by stitches to avoid scars, and require a physician to treat them.

Plasters were very popular as dressings many years ago, but should not be used now as they are known to infect the wounds and cause trouble by delaying the healing process.

Bleeding wounds generally cease when bathed with very hot water, as hot as can be borne. Most wounds cease bleeding in a few minutes by coagulation of the blood alone.

Where a wound persists in bleeding, it can always be stopped by pressure of the fingers or by pressure from a muslin pad tied firmly on the wound till a physician can be called. Nothing is better temporarily than the fingers and a cotton pad when they are clean and the pad large enough to cover the wound. They will stop almost any bleeding points till they can be tied. When the wound is not too large the pad and bandages will always do the work successfully. Unless blood flows in a steady stream from a wound, and continues to do so after hot bathing is fairly tried and the wound dressed with a thick pad, there is no danger. Oozing or dropping of blood always stops in time.

Dirty Wounds.

These are dangerous. Lockjaw comes from wounds soiled by poisonous dust or earth. The poison exists in the ground and every care should be taken to cleanse the wound thoroughly with warm water and then disinfect it well with bichloride solution (Remedy No. 96). Fresh, clean cloths or absorbent cotton are best for shallow wounds. They should be washed out freely. Deep or

punctured wounds should be injected well with a syringe and the bichloride solution before dressing them. Second and third dressings should be done in the same way, and when the wound soils the dressings, they should always be removed, no matter how long or short a time since they were applied.

All old wounds and sores will heal rapidly if treated in this way with these antiseptic dressings.

Poisoned Wounds.

A poisoned wound is one which receives the poison at the time of injury. It may be any size, from the bite of a mosquito to the large, lacerated wound of the rabid dog.

Mosquito bites are much more irritating to some people than others. The same applies to the sting of bees and and the bites of all other insects. Even in the same individual there is wide diversity in the irritations produced at different times, and in different locations. As a rule all stings and bites over bony parts are more painful on account of the density of the tissues preventing such easy swelling as always follows these injuries on soft parts of the body. Bites and stings over the eyes always cause swelling of the soft tissues around the eyes. Stings on the scalp are very painful and tender, also those on the back of the hand. There is no antidotal application that is reliable. Careful examination of stings will often discover the sting in the wound. It should be withdrawn. Any cold application will be soothing and also healing. Perhaps the application of carbolic or acetic acid, with a match or toothpick, is the most reliable antidotal and soothing dressing that can be used. Only a small drop is required. Many find benefit from the application of

camphor spirits, or ammonia water, others have faith in ice water. If the child is in good health the marks and swellings will disappear in a couple of days.

Bites of dogs, cats, rats and squirrels are the most common. Dog bites are more common than all others combined, and are also more serious. Occasionally we hear of bad results from other animals, but most commonly we hear of these results from dog bites. Probably this is entirely due to their greater frequency.

The great fear of these bites is due to the belief in their present and future poisonous character. Most people believe that a dog is rabid if he bites a child; or they fear he may be going that way. If not then rabid, they dread the possibility of his becoming so at some future date; and they believe that if he does become so, the child will also be seized in the same way. This is, of course, absurd; but it is one of our inherited ideas, and cannot be untaught. Dogs become rabid most frequently of all animals, but not one-half are rabid that are so called. The dog should not be killed till all uncertainty about his condition is removed. Where a dog bites through clothes there is little chance of the wound being poisoned by his saliva, as the clothes dry the teeth and shut out all moisture from his mouth. Bites should be cauterized at once with carbolic acid or lunar caustic, after being well bathed with hot water and also well squeezed.

If there is no doubt about the dog being rabid the bitten part should be cut out at once. Where this cannot be done the hand or limb should be well constricted with a rope or band above the wound, drawn as tight as possible, till the wound can be excised, and also cauterized, with a red-hot iron, or strong sulphuric acid.

Of snake bites we have little experience till we reach

the torrid zone. Rattlesnakes are common in the temperate zone and occasionally they bite some one. The snake inserts the poison through a hollow tooth with the bite. These bites demand the same attention as a rabid dog's. A general belief exists in the antidotal power of alcohol in these cases ; consequently whisky or brandy is usually given at once, to the free intoxication of the patient.

Punctured Wounds.

These are made by nails, splinters, fish hooks, or other sharp objects. Rusty, dirty nails usually penetrate the feet from stepping on them. The hole left should be syringed out with bichloride solutions (Remedy No. 96) every day till healed.

The wounds from splinters usually heal well and quickly after the splinter is withdrawn. The same dressing is needed here as in wounds from nails.

Fish hooks usually remain till withdrawn by a pair of forceps or cut out. Bichloride dressing is all that is needed afterwards.

Broken needles are a common cause of injury in the foot or hand. They generally break off just under the skin and can be felt by pressure. Do not try to extract them, always send for a physician. Find the balance of the needle if possible, that you may be sure you have it all when the piece is extracted.

Bruises.

Bruises are very common among children. The swelling after a bruise is due to the tearing of the flesh and veins and the escape of blood into the bruised part. The swelling is always in direct proportion to the size of the

bruised tissues. Bruises over bony parts swell up immediately, and all become bluish or purple, from the clotted blood in them. Thus bruises on the forehead cause ugly deformities from this swelling, and also great discoloration which settles down into the soft tissues around the eyes, causing blackness. This effused or clotted blood cannot be removed by lancing or leeching or in any way artificially, When there is no break in the skin over the bruised part the injury is always safe and all swelling and discoloration will pass away in ten to fifteen days. Those discolorations assume all tints, from black to green and yellow, in the process of absorption.

The treatment for bruises is cold applications with pressure, at once, to check too much bleeding under the skin. Where cold cannot be obtained pressure alone can be used with compress and bandage. Some are in favor of hot applications with pressure, or alcoholic dressings such as alcohol or extract of witch hazel. Rubbing the swollen part gently and continuously will assist materially in hastening the absorption of blood and thus also assists in the recovery. Heavy rubbing always aggravates the swelling and soreness.

Where bruises remain sore and painful after the first two days, disinfecting lotion (Remedy No. 94) should be applied hot and renewed or moistened often enough to prevent drying. The sore or bruised part should always be elevated. This facilitates the circulation and assists the cure.

Dislocations and Fractures.

Dislocations are caused by a force able to tear the ligaments tying the bones together. A dislocation follows the *most extremely torn ligaments*, thus allowing the bones

to pass from their usual positions of uniformity and make the joint very deformed and useless. They must be corrected and also treated by a physician. After reduction they should be treated like a severe sprain.

Fractures in children are very common on account of the weakness of their bones. Those of the forearm and collar bone are most frequent. The bones of children often break like a green stick, only one side being broken and the balance bent. These cause crookedness, and usually appear in the arms, as these are the bones which bend most.

Fractures always require good medical attention to preserve the shape and length of the fractured part. Until the physician arrives the broken limb may be tied up in a pillow, or, in case of the leg, to the opposite limb, to keep it quiet and avoid the severe pain coming from any motion.

Sprains.

These occur mostly in the joints; and more frequently in the ankle than in any other part of the body. A sprain is caused by the force tearing more or less of the ligamentous fibers which bind the bones together in forming the joint. If only a few fibers are strained we have little swelling or pain, and the joint is well again in a few days. If, on the contrary, many fibers are torn and ligaments severed completely, we have a very serious condition, great swelling, discoloration, and pain, with heat in the part injured. Such a sprain will require weeks or perhaps months for a recovery, and is worse than a fracture. We have all degrees of severity between those two extremes of injury.

The treatment in sprains should be referred to a physician. While slight injuries will recover with any treat-

ment, severe ones will cause suffering and lameness under the best treatment. Cold or hot applications should be used freely and long, according as they are comfortable to the patient. The injured part should always be elevated, and rubbed upward every day. Generally a moderately tight bandage can be worn with comfort. When the first painful symptoms subside, chloroform or soap liniment should be applied, and well rubbed into the skin. Exercise of the joint is necessary in the treatment, to preserve the motion and hasten the recovery. Many of these joints remain stiff for a long time after the patient has recovered, consequently regular motion should daily be obtained in sprains as early as the pain will allow it.

Snoring—Mouth-breathing.

Snoring is caused by the air passing through the mouth into the lungs instead of going through the nose. This may be due to the habit of keeping the mouth open while sleeping; or it may be due to necessity, on account of enlarged tonsils, or catarrhal trouble closing the nostrils while lying down, even when they are clear when the child is running around.

When a child without any catarrhal obstruction snores, it usually lies on its back. It seldom snores while lying on the side. Such cases are corrected by turning them over, or gently closing the mouth while sleeping. Catarrhal cases require the diseased or enlarged tonsils removed and the nose regularly douched with Remedy No. 95½, to cleanse the nose and check the discharge. Such children do not thrive or develop while suffering from these obstructions. Usually such cases also suffer from adenoids in the posterior nose, which require removal.

Nose Bleeding.

This is a common habit with some children, and returns regularly without any apparent cause. Other children never have it without a blow or other injury on the nose. Usually the flow of blood is slight and does little harm, if any; many think it is an advantage to strong, robust children, as it relieves them of headache, dizziness, or sleepiness. Occasionally it is too prolonged and the child becomes pale and faint. In the healthy, strong children it stops after a few minutes without any assistance. Where it does not cease of itself, cold applications to the nose, pushing small lumps of ice up the nose, sitting erect or snuffing an astringent wash (Remedy No. 101) up the nose will generally check the flow. Children should not blow the nose, as this perpetuates the bleeding. While lying on the back the blood flows down into the throat and is swallowed or causes nausea. This causes no damage and can be avoided by keeping the face downward.

When a child is feverish and the nose bleeds every day or two, we suspect an attack of typhoid fever as the cause of these returns.

An impoverished condition of the blood, or a diseased heart or liver, may cause repeated nose bleeding also. Occasionally poorly fed infants will become scorbutic and have nose bleeding *as a symptom.*

In these obstinate cases the flow of blood may be checked by pressing the upper lip close under the nose. The pressure must be steady and cover all the lip immediately under the nose. Plugs of absorbent cotton soaked in strong tannine water (Remedy No. 101) may be pressed far up the nose, but in cases as severe as this the physician should be called, as it may be necessary to plug the nose behind and in front in order to check the hem-

orrhage. After these severe attacks attention should be given to the dietary and all constitutional ailments, so as to secure protection against a repetition. When the blood is diluted by much bleeding it is likely to flow easily again, and requires attention at once to thicken and strengthen it. The physician will attend to this condition.

Burns and Scalds.

These destroy the skin, and are dangerous in proportion to the size and depth of the part destroyed. Burns are caused by fire or heated metals, scalds are produced by heated liquids, water mostly. Light burns from flame may be very extensive but usually are not deep; scalds from water or steam are often the same. In these the danger is in proportion to the amount of skin and nerve terminals destroyed. Where dangerous these patients usually die in two or three days. Deep burns are not usually so extensive, they are mostly caused by molten metals falling into the shoes. These are painful but not usually dangerous. Burns produced by the clothes being on fire are usually very serious: most of these patients die.

The treatment in these injuries demands the immediate exclusion of air to control the pain. It will be successful in proportion to its complete application. The simplest way is always to immerse the burned part in tepid or cool water till the proper dressings are prepared. Where extensively burned, kindness demands putting the patient into the bath tub, and covering all burns with the water of a comfortable temperature. There is no virtue in any first dressing for these injuries, save the comfortable *temperature* and *total exclusion* of *air*. If it were possible to remain in the bath tub or to keep the

burned part immersed in water of a comfortable temperature, all the time, there is no treatment known that would relieve pain so perfectly, make so little scarring in the healing process, or save so many lives. As this can always be applied temporarily by using soft wet cloths freely, this gives care and comfort till the physician arrives.

A mother should not undertake the care of any burns or scalds except the small ones; and to properly care for these she must understand the principles of the treatment. That treatment is most successful which is cleanest and most comfortable.

Cleanest dressings means to use such cloths, lotions, and applications as are clean themselves, and do not decompose and become filthy, thus causing bad odors, when applied for half or a whole day at a time.

Comfortable dressings are those which are easily applied, are not too hot, do not become dry, never stick to the sores, and are easily removed.

I know of only one dressing which meets all these indications, and that is the saline solution, Remedy No. 95½, which is composed of one teaspoonful of common salt and one pint of boiled water. This strength of salt is the same as is in the blood, and causes no smarting when applied. Old clean muslin, such as underclothing or gauze cloths of several thicknesses, should be dipped in this solution and spread evenly over the sores in several layers, and over these oiled or paraffine paper should be applied, to prevent evaporation and drying, and all bound on with a bandage. Care should be observed to make the cloths thick enough only for comfort and to retain the moisture. When too heavy they cause pain and smarting in the sores, from too great heat. This is a common error and should be avoided. The same rule applies to

all dressings, batting, etc., which are so commonly used in these cases. Remember not to increase the injury by too much or too warm dressing of any kind. All oils, ointments, soda, flour, and powders dry and stick to the sores, thus causing pain, filth and decomposition, as well as injury in being removed. The salt water dressing can be moistened regularly and changed frequently, thus keeping the burns and scalds clean, moist, and comfortable. Not the least important feature in caring for these injuries, is to have a dressing which will secure rapid healing and little if any, scarring of the skin. There is no application equal to the saline solution in this respect.

All blisters and loose skin should at first be preserved without injury. At the second dressing those blisters should be pricked, but no skin removed. Every effort should be made to preserve the natural covering as long as it shows any life, but it should be removed when it is loose, and harbors secretions under it that the saline solution can not remove. Burns caused by acid should be washed off well with water and then dressed with cloths soaked in baking soda water, to neutralize the acid still remaining in the wound.

Burns caused by lye or alkalies of any kind require immediate treatment with vinegar and water, to neutralize the alkalies. Cloths soaked in this should be used to wash the sore part. These sores can be dressed with oxide of zinc ointment (Remedy No. 80) after removing the first dressings of vinegar water, as the caustic power of the lye or alkelies will then be destroyed.

Foreign Bodies in the Ear.

Children commonly push buttons, beads or other small objects into the ear. These are difficult to remove and

should not be touched till a suitable instrument can be made to remove them. The mother should take her finest hair pin and slightly curve the bent end (Figure 44) of it, so

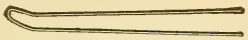

Figure 44. Curved hair pin for removing foreign objects from nose or ear.

she can slip it in over the object, and hook it out. The round or bent end of a thin hair pin cannot hurt anything in the ear; slips in easily over the foreign body and makes an admirable double hook for this purpose. Where this effort is unsuccessful a stream of warm water from a fountain syringe should be run into the ear. This will always dislodge insects, and light objects, as they float on the water. A small stream from a pitcher will serve the purpose, where there is no fountain syringe.

As these foreign bodies can go only one-half to three-quarters of an inch into the ear, there is seldom any danger if they remain there till a physician can be seen.

Foreign Bodies in the Nose.

Children are continually shoving toys and small objects up the nose. These do little harm if removed soon, but where they are pushed up far and lodge beyond sight, small objects like seeds, buttons or beads may remain and cause continuous discharge resembling a bad catarrh. Where this discharge comes from only one side of the nostril and is continuous for weeks, the nose should be carefully inspected by a physician. Objects that can be seen should be removed with the curved hair pin as is done in the ear (Figure 44). To do this successfully the mother should sit facing a window or open door and have an assistant sit before her but backing the light. The child

should be placed between them on its back with its head resting between the mother's knees. The assistant holds the child's hands and rests its back on her lap. The light now shines into the nose and allows the bent hair pin to be slipped fully over the foreign body and it is easily hooked out. As the head must be kept absolutely quiet to be successful in doing this, no effort should be made till all preparations are complete, and then the first trial will be successful. In this position the mother's left hand, pressed down firmly on the forehead, keeps the nose absolutely quiet and prevents injury. A mother can in this way extract any object she can see. She must be sure to pass the bent hair pin well over the object. A little bleeding always follows this removal, but it is not dangerous.

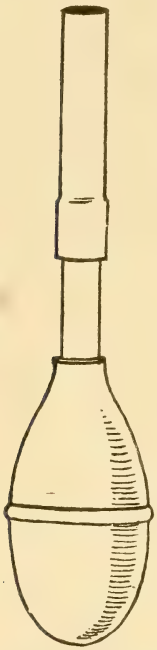

Figure 45. For removing foreign objects from the nose or ear.

Where foreign bodies are pushed too far up to be easily reached, they may be shoved over into the throat with safety by a physician, but parents should never attempt to remove any object when far back from the entrance of the nose.

Tickling the nose with a feather or snuffing up pepper or snuff may cause sneezing, and thus dislodge many small objects from the nose.

By fastening a piece of small, soft rubber tubing to the nozzle of a soft rubber syringe (Figure 45), foreign objects can be removed from both nose and ear. The tube is slipped down to the object and then the bulb expanded and withdrawn quickly. This sucks the object to the tube and it can easily be removed.

Removing Foreign Objects from the Eye.

In adults pieces of steel, emery and dirt are driven from machinery with great force against the eye. Frequently these pieces are red hot and bury themselves in the dark cornea where it is difficult to see them, except in bright daylight. Particles of all kinds are invisible in the dark part of the cornea by gas or lamp light; but they can be easily seen on all other parts of the eye. Usually the tears will wash small particles out, but when they fail to do this, the mother can do it herself with the corner of her handkerchief by everting the lids. Loose particles usually stick to the lids.

The lower half of the eye is easily seen by pulling the lower lid well down while the child is looking upward. One finger pressed firmly on the skin below the eye will pull the lower lid down effectually.

The upper half is the most difficult to examine. By

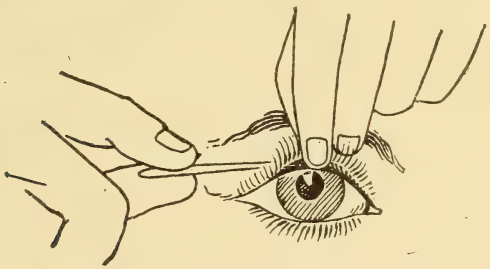

Figure 46. Everting the upper lid.

grasping the upper lash firmly with the thumb and finger the lid can be pulled freely out and down low over the lower lash, when it should be pressed in over it, released, and allowed to draw itself up to its natural position. In this move the lower lash will wipe particles off of the inside of the lower part of the upper lid.

When this move does not give relief, the mother should again grasp the upper lash and draw it out far from the eye, while it is looking downwards. She should then press the center of the lid well down with a match and carry the lash up over the match, thus turning the lid out (Figure 46).

This manœuver will expose the lining of the upper half of the eye and enable all foreign objects to be easily seen.

Commonly after an eye has been irritated in this way by some substance, nothing can be seen but a generally inflamed and teary condition. In these cases the eye should be well bathed with boric acid solution, Remedy No. 94, twice daily. Bathing with hot water alone, with shading from the light will generally relieve the irritation in twenty-four hours. Where relief is not complete a physician should be consulted.

Where sharp objects strike the eye and cause any bleeding or roughness a physician should be consulted at once, as very little wounds are dangerous to the sight. All penetrating wounds are serious and require the best medical skill to avoid blindness. Sudden blows on the eye from balls or other objects often cause hemorrhage in the eye and consequent loss of sight.

Swallowing Foreign Bodies.

The habit of putting buttons, marbles, pennies, and other small objects in the mouth often makes a child swallow one of them. This generally causes great alarm to the mother. As long as the child complains of no pain in swallowing the object, this shows plenty of room for it to pass into the stomach, and nature has so proportioned the body that what the stomach can receive easily, it can dispose of on just as easy terms. I have never

seen any harm arise from small objects swallowed in this way. When damage arises it shows by checking the object in the throat or esophagus and is accompanied by pain or hurting at that point. The fear of poisoning from pennies swallowed is groundless. The anxiety caused by swallowing a pin does not seem to be justified. The pin is generally never heard from again. It travels downward with the other stomach contents according to nature's plan, and no efforts should be made with emetics or cathartics to hasten the removal of it or any other object accidentally swallowed.

Fishbones, pins and other things which stick in the throat and cause pain or pricking should be withdrawn carefully, with the finger. Sometimes by reversing the child head downward, and slapping vigorously on the back the object will drop out. If it can not be removed and continues to cause pain and nausea a physician should be called in. Sometimes small objects can be forced downward by making the child swallow a large mouthful of food at once. This dilates the tube and sweeps the walls as it passes along. Fishbones are often removed in this way.

Drowning.

An occasional mother is unfortunate enough to need knowledge on this point; and all mothers should study the application of means for resuscitating the drowned. They should occasionally put these movements into practice on a child, so as to be familiar with them when needed. Drowning is one form of suffocation, and this can only exist a short time before the heart is overpowered with poisoned blood and ceases to beat. Also this poisoned blood soon becomes cold from contact with the cold water and this paralyses the heart muscle, thus again

checking its action. So we see there are two factors checking or stopping the action of the heart in drowning.

Promptness is imperative to restore activity in a drowned individual. First drain the water out of the

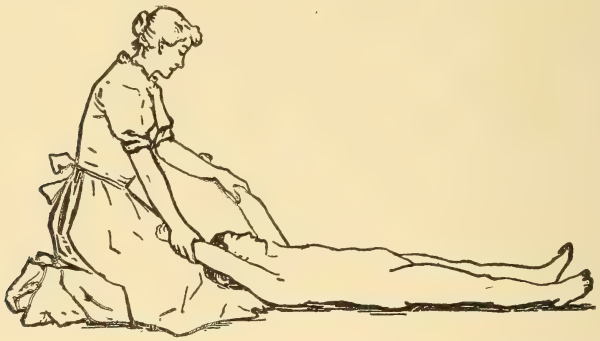

Figure 47. Sylvester method, first movement.

lungs by turning the child on the face and then lift the body up at the waist so that the mouth is the lowest part.

Figure 48. Second movement.

By putting the arms around the lower part of the chest and then lifting we compress the chest and assist in

forcing the water outwards. While doing this others should rub him dry quickly and secure heat of any kind to warm the body, while one endeavors to establish breathing. If the heart beats this can be done usually by the Sylvester method. Turn the child on the back, place a folded coat or roll under the shoulders, with the head falling back and downwards; pull out the tongue so as to give space for the air to enter, and wrap a cloth around it with which to hold it out; grasp the arms and pull them up above the head, as in Figure 47, then swing them down along the floor or ground against the sides with firm pressure against the ribs; as in Figure 48. Repeat these motions above the head and down again every three or four seconds in imitation of natural breathing, which is about eighteen to twenty times per minute. All means of heating should be continued vigorously, while the efforts at breathing are followed for an hour or two, or as long as there is the least vestige of life. The upward strong pull draws the air into the lung and the downward firm pressure against the ribs expels it again.

Brisk rubbing up towards the heart should be followed steadily to assist in moving the blood in that direction. Spatting the body with the hand or a hot wet cloth, smelling of salts, and elevating the legs all aid in the resuscitation. Great perseverance and some stimulating with ammonia or brandy are needed, even when breathing has returned, in order to keep the heart moving.

Concussion of the Brain.

The violent exercise and impetuosity of children leaves them continually exposed to danger. This affects all parts of the body; but in no part does this become more serious than in injuries to the head. This is particularly

evident with children who play on paved streets. Every fall or collision is dangerous there and likely to cause concussion of the brain.

When a child is rendered insensible from a fall or blow, it is called concussion of the brain. When the insensibility lasts only a few minutes the child will probably be well next day; but when it lasts some hours, the child will probably not be free from headache for some days or even weeks. Where the child does not recover at once, a physician should be called. These patients must be kept cool and quiet till all evidences of tenderness pass away. If the head feels hot, an ice bag may be applied to relieve this sensation, and prevent inflammation of the brain. These patients should receive very little food till they are free from the headache.

Ivy Poisoning.

This term is applied to the poisonous irritation produced by ivy, and all plants and weeds which irritate the skin. The irritation causes redness, swelling and intense itching or pain in the parts exposed to the poison. Frequently the hand becomes poisoned and conveys the virus to other parts of the body, thus covering the face also. The swelling is rapid and the redness looks bad enough to suggest erysipelas. When in the face, it nearly closes the eyes, and causes great disfiguration, like erysipelas. A close examination shows the surface covered with innumerable small vesicles.

Figure 49. Poison ivy.

pin head or larger in size. These rupture and dry up as the swelling passes away at the end of three or four days. The vesicles indicate the ivy poison

The ivy is a three-leaved, waxy, and highly colored climbing plant, (Figure 49) usually seen on the sides of trees, and by some called "poison oak." Having only three small leaves in a cluster makes it easy to distinguish from all the ordinary house creepers, which are mostly five-leaved (Figure 50).

Figure 50. House creeper.

Melted lard and tallow of equal parts makes a soothing dressing and secures early healing. Liquid applications are not well suited to this eruption. Oxide of zinc one part and lard five parts may also be applied as a soothing and healing ointment.

Poisons.

As druggists are compelled by law to keep all poisonous remedies labelled *poison*, and placed so that accidental mistakes can not or will not occur, so should every mother carefully study the use and position of every poisonous substance in her house. She should see to it that they are clearly marked POISON, also; and that no person has the opportunity to disturb these regulations, or to use the poisonous articles either medicinally or domestically without her knowledge. She owes these regulations to herself, she owes them to her servants, but especially does she owe these precautions to her innocent little children, who are most likely to be the sufferers from her carelessness or her neglect. In nine cases out of every ten

of poisoning from household errors, some little child is the sufferer.

Each mother should adopt a general way of marking every poison, besides putting the word *poison* on the bottle or container. This marking should be such that an error can not be made, even in the dark, by those conversant with the mark. Perhaps nothing answers this purpose better than fastening a little piece of brass wire chain around the neck of the bottle and leaving it long enough to hang low down on the sides. This will warn every one, even in the dark, that this article contains poison, and will make them cautious. In domestic use lye, either liquid or concentrated, is much used. My experience has been that most domestic poisoning occurs through the use of this article. The liquid, left a few minutes on the table, is mistaken for water, and swallowed by the child; the fragment of solid lye, chipped and dropped on the floor, resembling sugar icing or candy to the little one, is swallowed or attempted, and the result in either form is ruinous. If it does not kill at once, it will in the course of a year or two. It is always better if the end comes quickly for these little ones.

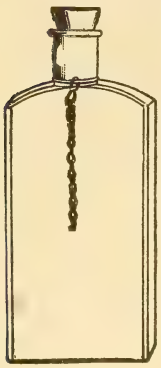

Figure 51. Marked by a chain to show it contains poison.

The treatment for poisoning is dilution first; emetics second; and antidotes third.

For dilution give all the water or milk the child can be forced to drink. This dilution delays absorption of poisons in the stomach and reduces the caustic power of acids and alkalies (lye, ammonia, etc.). For emetics use Remedy No. 52, freely till vomiting follows; or,

better, run your finger or a teaspoon handle down the child's throat, retaining it there till vomiting follows; or, better still, give the emetics and use the finger or spoon handle in ten to fifteen minutes afterwards.

As an antidote there is, perhaps, nothing better than *Jeaunel's General Antidote* (Remedy No. 51). This remedy meets arsenic, digitalis, zinc and acids successfully, and also materially checks the power of morphine, strychnine and copper. It must be given freely, and soothing drinks also, such as milk, egg white, mucilage, flour and water, slippery elm water, barley water, or flaxseed tea. Always give the drink you have at hand, not waiting to prepare one.

In all poisoning, while the drinks, emetics, and antidotes are used, the general condition of the child should receive attention, as follows:

For coldness and pain, apply heat freely.

For weakness and paleness, give whisky or brandy.

For exhaustion, put the child in bed, except where opium, morphine, laudanum, paregoric, chloral, and all drugs or poisons that cause sleep are the poison suspected. These cases must not be allowed in bed nor even to sleep, as these aid the poisonous effect. They must be kept awake, and walking, if possible. In all cases of poisoning the physician should be called first, and then all efforts made to relieve, as directed in the following list of poisons, until he arrives.

Table of Poisons, Antidotes and Treatment.

Poisons.	Antidotes.	Treatment.
Acids—Acetic, hydrochloric, sulphuric, nitric.	Soda, chalk, magnesia, soap, whiting.	Soothing drinks first and sweet oil freely afterward.
Acid carbolic, creasote.	Epsom salts, fixed oils.	Water freely as a drink.
Acid oxalic, salts of lemon.	Lime or magnesia.	Drinks and emetics.
Aconite.	Digitalis, stimulants.	Stimulate; emetics; lower the head.
Alcohol, whisky or brandy.		Emetics, cold to the head, heat to the feet and body, artificial respiration.
Alkalies:—Ammonia, lye, caustic potash.	Acids, lemon juice, vinegar water.	Soothing drinks, milk, etc., first, then vaseline or sweet oil after.
Antimony, tartar emetic.	Tannic acid, vege table acids.	Drinks freely, and castor oil afterwards.
Arsenic, Rat poison, Fowler's solution, Paris green.	Jeaunel's antidote, emetics freely.	Egg white and milk first, sweet oil and castor oil last.
Atropine.	Tannic acid freely.	Emetics, cold to the head, coffee, heat and stimulants.
Belladonna (see Atropine).		
Blue stone, blue vitriol.	Emetic, egg white, yellow prussiate of potash.	Jeaunel's antidote, then milk and soothing drinks.
Carbolic acid.	Fixed oils.	Hot water freely.
Chloral.	Permanganate of potash, four to five grains every half hour. Emetics at first, if seen early.	Keep child awake with walking, slapping or cold douche.
Chloroform, inhaled.		Inverted position (head down), cold douche, artificial respiration.

Table of Poisons, Antidotes and Treatment—Continued.

Poisons.	Antidotes.	Treatment.
Copper, blue stone, blue vitriol, verdigris (see Blue stone).		
Corrosive sublimate.	Milk or egg white.	Emetics, soothing drinks, tannic acid and water, castor oil.
Fowler's solution (see Arsenic).		
Gas, inhalations.		Fresh air, cold douche, ammonia to the nostrils, frictions.
Iodine.	Starch or flour with water.	Emetics, drinks.
Laudanum (see Chloral).		
Lead (sugar of lead).	Epsom salts.	Emetics, drinks, and castor oil.
Morphine (see Chloral). Opium (see Chloral) Paregoric (see Chloral). Paris Green (see Arsenic).		
Phosphorus, Matches and some rat poisons.	Sulphate of copper, two grains in water every ten to fifteen minutes, for free vomiting.	Purgatives, Epsom salts or castor oil.
Poisonous plants, tobacco, mushrooms, etc.		Emetics, strong coffee, brandy, heat to the extremities, artificial respiration.
Nitrate of silver, (lunar caustic).	Table salt.	Emetics, milk, or egg whites.
Spoiled food.		Emetics, cathartics.
Strychnine, Nuxvomica.	Bromide of potash and water.	Emetics, tannic acid and chloral as needed for spasms.
Tartar emetic(see Antimony).		

Convulsions, Spasms, Epilepsy.

This is a condition in which the head loses consciousness and control over the rest of the nervous system. The result is that the whole muscular system is relaxed and contracted in a violently spasmodic way. Previous to these attacks except in epilepsy the child is usually complaining of being cold or feverish, and those watching him notice an unusual nervousness, restlessness, trembling of the hands, squinting of the eyes, or heaviness which are foreign to the child. Presently he cries out, and becomes stiff ; soon the face becomes dark, from this stiffness preventing breathing; and this is followed by a violent twitching and jerking of the whole body, with frothing from the mouth and noisy snoring breathing.

Where children have teeth this frothing at times is mixed with blood from the tongue, which has been bitten. This convulsive condition passes away in one to five minutes, and is followed by a deep sleep of half an hour or more, when in favorable cases the child wakes up in a natural and intelligent condition.

This is the usual course followed by children, and may be due to overeating, fever from any cause, the chilly state of a commencing sickness, pneumonia, dysentery, rheumatism or acute indigestion.

These cases usually recover and show no bad results from the attack, but are likely to have a repetition at any time under like circumstances till they are two to three years old.

Rickety children, those teething, nervous children, those with whooping cough, and those very greedy are most likely to suffer in this way. Some children have a convulsion every time they are sick from any cause, so much so is this the case, that the mother is usually able to tell when it is coming.

Convulsions are more common in hot weather than in cold weather. Where a child vomits freely in an attack it recovers quickly, and becomes natural.

Where a child does not become soft and natural after the convulsion, but remains stiff, with the thumbs drawn into the palm, and does not recognize the voice of its mother or any person, it will usually have the convulsion repeated indefinitely for hours.

The first or single spasm cases are reflex ones and not dangerous, because they are not due to any change in the brain itself. The disturbance is merely a nervous one, and passes off quickly with the vomiting or reduction of the fever by a bath.

The second or repeated spasm cases, with stiffness between and continued lack of recognition or intelligence, are mostly due to actual changes in the brain. These cases are very dangerous indeed. The majority of them die, and those recovering are likely to have paralysis of one leg or arm, or most likely of both.

This paralysis usually decreases as the child convalesces, but is very likely to leave some traces or marks on the child. These usually show in deafness, loss of speech, mental impairment, a weak leg or a small arm. The longer the child remains sick the less likely it is to be perfect on recovery.

Children in convulsions are usually too warm. They are suffering from fever and this should be reduced as quickly as possible, never waiting for the arrival of the physician. The mother should strip the child at once, and bathe it in any water she has, whether that be hot or cold. If hot the child should be placed down in the bath, with cold water to the head. This hot water should not be over 90 degrees, and would properly be called

warm. Free rubbing should be applied in the water and cold kept constantly to the head. While in the water the spasm will stop in favorable cases.

Where there is no warm water, the mother should use cold water in a basin with a good large wash cloth, going over the whole body rapidly and often till the child is cooled down and the convulsion stops.

These children should then be wrapped in a blanket with cold to the head and heat to the feet. As soon as they can swallow, a dose of Remedy No. 54, should be given every hour or two till they are quiet and sleeping.

Where a child does not become natural after a sleep, it should receive the most careful medical attention if it has not received it before.

Epilepsy is a repetition of this convulsed condition without any fever, chills, or vomiting, but the usual sleep afterward. The child just has a fit without any apparent reason for it or premonitory symptoms of sickness, save a slight change of manner, only noticeable by the mother. Where epilepsy appears early, as in the first year the children usually die, and this is true particularly of the youngest cases. There is little or no treatment successful in epilepsy.

CHAPTER XIV.

INFECTIOUS DISEASES

Infection and Contagion.

The thoughtless use of these words at times creates confusion by giving wrong impressions. A disease may be infectious but not contagious. Malaria is an evidence of this. Infection means an ability to enter the body from any source—wind, water, food, or other person—and produce a characteristic disease. The agency of doing this is known as a germ, and may be fresh or old.

Contagion is properly a poisoning of one individual from contact with a diseased individual in some way known or unknown. The contagion may be conveyed indirectly through clothes or other person; but always comes from some person sick of the same disease. A disease may be both infectious and contagious. Nearly all the epidemic diseases of infancy are both infectious and contagious and accompanied by fever. Perhaps whooping cough is the single exception to this, as it is not acccompanied by fever.

Infectious Diseases.

In nursing children suffering from infectious diseases, the mother or nurse should avoid their breath, and handle them as little as possible. Here, particularly, lap nursing is injurious to the child and dangerous to the

nurse. All excretions should fall into disinfecting solutions of copperas, chlorine or mercury (Remedies, Nos. 113, 114, 116), and be emptied into the sewer or buried, to avoid infecting other persons. These patients require regular washing with soap and warm water at least once each day.

Great care must be exercised to keep the hands washed after handling these infectious patients, so as not to infect the food, eyes, mouth or any small sores on the skin. Here mothers and nurses cannot be too careful, particularly in diphtheritic and scarlatinal cases.

The particular nursing requisite, of course, depends on the disease, but general principles are applicable to all.

The diet must be reduced in proportion to the severity of the fever. No solid food is safe in severe cases.

Cold drinks are allowable to all, in small quantities frequently repeated, provided there is no vomiting.

Frequent washing with tepid or cool water reduces fever and secures sleep. The more these cases sleep the better they progress, as long as there is no irritation of the brain.

Always begin the treatment by giving a dose of castor oil or some other laxative, to empty the bowels freely. This avoids secondary fever, from indigestion of the food lying in the stomach when the sickness commenced.

In nursing cases suspected of smallpox, those attending should be vaccinated at once; and in cases of diphtheria, recent experience shows that attendants are safe from this infection when treated with small doses of antitoxin. Experience also shows that there is no harm or danger arising from the use of this remedy.

When antitoxin was first introduced, great opposition was presented in many quarters to its use; but

statistics show nothing injurious traceable to it. The writer has used it twice to immunize all the children in the Detroit Protestant Orphan Asylum, where there are usually over ninety present. Formerly an outbreak there numbered from twenty to thirty cases of diphtheria before we eradicated the infection from the building. Now, by immunization with small doses of antitoxin, we check the epidemic at once, and avoid the fatal results that always followed all other forms of treatment.

Table of Infectious Diseases.

Disease.	Incubation Lasts.	Date of characteristic Symptom.	Whole Duration.
Mumps	7 to 20 days.	1st day.	1 week or less.
Whooping cough	2 to 7 days.	7th to 14th day.	2 months.
Diphtheria	1 to 12 days.	1st to 2d day.	1 week to 1 month.
Erysipelas	3 to 8 days.	1st to 2d day.	1 to 3 weeks.
Varioloid	10 to 13 days.	1st to 3d day.	1 to 2 weeks.
Chicken-pox	12 to 17 days.	1st day.	4 to 7 days.
German measles	1 to 3 weeks.	1st day.	3 to 4 days.
Measles	12 to 14 days.	4th day.	7 to 9 days.
Scarlet fever	1 to 7 days.	1st or 2d day.	7 to 12 days.
Typhoid fever	2 weeks.	7th or 8th day.	3 to 5 weeks.
Smallpox	10 to 14 days.	3d to 4th day.	2 to 4 weeks.

Smallpox and Varioloid.

This is the most contagious, most malignant, and most repugnant of all the contagious diseases. Fortunately we do not require to consider it here. Thanks to the protective power of vaccine, neither parents nor physicians are called to contend with its repulsive presence. It behoves

all parents to enjoy this blessing to the utmost, by giving their children and themselves the protection which fresh bovine vaccine affords. Certainly, successful vaccination is a perfect safeguard against smallpox.

The duration of the power of vaccine in each individual is unknown. In every epidemic of smallpox some persons who were vaccinated many years before are likely to contract smallpox in a mild form, called varioloid. These people nearly always recover, as they have the disease in a mild modified form. In fact, most of them are very little sick indeed and recover early.

To avoid varioloid it is necessary that vaccination be repeated every five to seven years. When this is done the vaccine virus works on some but not on others. Those who show vigorous action of vaccine a second time would probably contract smallpox if exposed to it.

Those exposed to the contagion of smallpox will sicken with the disease in ten to fourteen days. The eruption usually appears on the third day of sickness and the intensity of the first fever and pains, particularly those in the back, will indicate the severity of the attack.

A person exposed to smallpox should always be vaccinated at once, in order to obtain the protective or modifying power of the vaccine, before the virus of smallpox culminates in an attack of the disease.

German Measles; Rotheln; Rubeola.

This is one of the contagious diseases of childhood. In appearance it resembles measles and from this fact has been commonly called German or Dutch measles. It is a very mild disease, with very light fever generally, or even none. There is little warning of its approach, and

often the rash is the only evidence that the child shows of any form of sickness.

The rash lasts from one to three days, but in the great majority of cases it has disappeared on the second day without any desquamation following it. In some epidemics the tendency is to a longer duration of the eruption.

The period of incubation is uncertain, but may stretch from one to three weeks after exposure.

There is little treatment needed, as most of the children show little sickness, and enjoy a good appetite all the time. Avoidance of exposure to cold is the main necessity, and with this protection no other treatment is needed in most cases. The rash generally disappears as rapidly as it came. It is always a coarse one, like that in measles.

Chickenpox; Varicella.

This is perhaps the simplest and mildest of epidemic diseases of childhood. It occurs but once in each case, is contagious, very common, and resembles mild varioloid. It is characterized by mild, light fever and large bulbs or vesicles almost the size of a split pea scattered sparcely over the skin. There may not be a half dozen on the child, and there may be hundreds. They are reddish gray and appear on the face and head first, one crop following another and showing early on the body. They are filled with clear liquid, which soon turns yellowish, and then they break and dry up, leaving no scars unless large and irritated by the fingers. The patients are usually well in a week, but the scars may last much longer.

Little treatment is required. Other children who have not had the disease should be excluded. The child

should be kept in and fed lightly on ordinary food. Large vesicles on the face, when yellow should be pricked and washed with a disinfecting lotion twice daily (Remedy No. 94).

The child should not be allowed to pick the sores on the face, as this delays the healing and causes a pit or mark similar to that of smallpox.

Vaccinia ; Cowpox ; Vaccination.

Vaccination is the process found reliable in protecting humanity against smallpox, the greatest epidemic scourge the world has ever known. By this process the virus of cowpox is transformed in the child, and this gives that immunity against smallpox which attacks of scarlet fever give against scarlet fever. The greater protection given by the bovine virus over humanized virus, as well as its greater purity, has caused the former to be used almost entirely during the last twenty-five years in vaccinating children.

Large establishments are vaccinating heifers continually and collecting the vaccine virus on ivory points and in glass tubes. These are obtainable in all cities and towns for vaccinating children and adults.

Vaccine is applied by scraping off the outer layer of skin and then putting the virus on the raw surface thus made. It may also be put under the true skin. In from two to three days a slight redness appears on this spot, and increases daily, till at the end of a week it is greatly enlarged and a large vesicle is seen in the center of it. This vesicle is seen to be composed of a group of smaller ones filled with a clear fluid, which becomes cloudy about the tenth day after vaccinating. It is then as large as a cent and is surrounded by a red swollen areola about two

inches in diameter. The vesicle gradually dries up and forms a scab, which falls off in about three weeks. This scab was formerly used to vaccinate others.

Children should be vaccinated when young and the operation repeated every four to seven years. One vaccination makes some immune to smallpox for ever, while others require a repetition every few years to preserve their immunity.

Girls should be vaccinated on the legs to avoid the scar in a visible place.

Vaccination makes children sick for one or two days with fever, and some have a copious, dark red eruption at this time also. With some children this sickness is very severe and the sore requires a long time to heal. Where this occurs the disinfecting wash (Remedy No. 94) should be used daily and the sore carefully dressed with absorbent cotton soaked in this lotion, and bandaged afterwards.

Where vaccination is not complete protection a patient may contract varioloid, a mild form of smallpox.

Mumps.

This is one of the infectious diseases of childhood. It appears once only; one attack giving an immunity from subsequent ones. It may come at any age from two years to thirty; but appears mostly in children under fifteen. Mumps is essentially an inflammation of the salivary glands, and comes on one side of the face first, passing over in a couple of days to the other side also. When present it gives the face a broad appearance at and under the ears and prevents the child from chewing anything solid. It may be confused with a swollen throat at first sight, but as there is no throat soreness in mumps a little

study will remove this uncertainty. There is considerable fever and pain, with well marked cases, which last from two days to a week. The usual length of the disease is about one week.

Mumps will occasionally leave the jaws and appear in the breasts in the female, or in the testicles in the male. In these two situations it is very painful and generally extends the attack for another week. An impression prevails that such attacks in the male cause subsequent sterility, but this is not true, as the writer has seen proven.

There is no tendency in mumps to the formation of pus, even when the face is very hard, swollen, and tender.

The treatment is mostly needed to allay pain and reduce the fever; as the disease is a specific one and runs a definite course, it can not be checked or its length shortened. Where the pain prevents rest and sleep some anodyne, such as laudanum, should be applied continually on a soft, warm cloth, and a febrile mixture such as Remedy No. 45, given internally till all fever subsides.

Whooping Cough.

This is one of the diseases much dreaded by parents, as it is so tedious, and thus in weak or young children endangers life by exhaustion. It can be known by the impetuous and frequent coughs following each other rapidly till out of breath, with a tendency to end in vomiting. If there is any choice of seasons, warm weather is the most favorable for this as for all coughs, on account of the warm air giving the most favorable conditions for rapid recovery.

Where whooping cough comes in winter the child will generally have enough returns of colds with spasmodic coughing to last till the summer season returns. In the

most favorable seasons the slightest cases of whooping cough will last from four to six weeks. The greatest care must be exercised to prevent any exposure to cold or moist conditions, which may cause attacks of bronchitis or pneumonia to complicate this already distressing and tedious disease.

All complications with whooping cough are serious, especially to nursing children, or those who have recently been sick.

As vomiting follows the cough, frequent feeding of small amounts is requisite to properly nourish the patient.

It seldom attacks a patient more than once, and can not be known from bronchitis for the first week or two.

When accompanied by fever it should receive prompt attention, as this indicates some complication, such as bronchitis or pneumonia. There should be no appreciable fever, and when the paroxysm of cough is over the child should sleep or play as well as ever till the next one returns.

The principal duties of the mother or nurse are in attending during the paroxysms of cough, clothing comfortably, feeding often, and avoiding exposure of those not immune by having had one attack.

Children always become poor while suffering from whooping cough. This makes it a serious sickness for delicate, poorly-nourished children, and especially for those very young or those suffering from bronchitis or pneumonia.

Medicines have little effect in controlling this disease. It runs a definite course, gradually increasing in severity for the first fifteen to twenty days, and then decreasing gradually till entirely well.

Where a child is much disturbed at night the writer has found Remedy No. 49 or No. 50, given every hour or two for a few doses in the evening, assist materially in lessening the paroxysms for the night. This gives better sleep and saves the strength of both child and nurse. Such cases always improve more rapidly when well rested, and fed small amounts frequently.

Scarlet Fever; Scarlatina.

Scarlet fever is one of the most dangerous of infantile diseases. It is very contagious to those who have not suffered from the disease before, but one attack gives an immunity against subsequent ones. Children under one year old very seldom contract this or any of the infectious diseases.

Adults occasionally contract all infectious diseases. Those who have not suffered formerly from these diseases should be careful about exposing themselves, and should, if possible, never nurse those suffering with them. All persons nursing scarlet fever are liable to have sore throat.

Contagious and infectious diseases are generally much more severe as children grow older; but this rule does not always apply. Also, some epidemics are much more malignant than others.

Scarlet fever commences with fever, nausea, head and back ache, and the other usual symptoms of any febrile disease. The severity of these symptoms usually indicates the gravity of the attack. The rash appears on the second day and looks very like a severe heat rash, but is finer and thicker.

With the rash there is generally a severe sore throat, which causes great difficulty in swallowing.

The rash or eruption continues for five or six days in severe cases, and only for one or two days in mild cases. It is a bright scarlet color and very fine.

As the disease subsides, the cuticle, or outer layer of the skin, dies and peels off. This is due to the severity of the eruption, and consequently this peeling, or desquamation, is in direct proportion to the severity of the attack. It usually lasts from three to four weeks, but in very light attacks this desquamation is scarcely perceptible, except in a few spots where the eruption was most developed. This stage of peeling is considered the most contagious for other children, as the fine scales fly in the air, and are thus inhaled.

Where the convalescing child is well bathed every day with warm, soapy water the peeling is much facilitated, and the tendency to inflammation of the kidneys and consequent dropsy is much lessened.

Children with scarlet fever should be kept in bed during all the feverish stage, and afterward should be protected from all cold influence till the peeling stage is completed. During convalescence any exposure to cold will probably cause an inflammation of the kidneys and resulting dropsy.

A physician should always be called to prescribe for scarlet fever. A mother can only work under directions with safety in this disease. It is accompanied by so much danger both during the attack and in the convalescence that the best treatment is always needed.

Scarlatina is a name given to mild attacks of scarlet fever. In all other respects they are identical.

Occasionally a child will develop all the membranous soreness of diphtheria while suffering from scarlet fever. This makes the sickness very severe and dangerous.

Such attacks generally require antitoxin, the same as a genuine diphtheria.

Cold water may and should be given frequently as a drink after the first two or three days or when all nausea has passed away. Where children refuse cold milk as a nourishment, always wanting water, both should be combined in equal amounts. These patients always refuse milk when they are allowed water; but this must be changed in all infantile sickness after the first few days of the illness, and the combined drink given to nourish the child. During the vomiting stage milk should be avoided, and very little water given.

The rash cannot be suppressed by tepid bathing or cold drinks.

The greatest danger in scarlet fever arises from throat complications aud the very high temperature.

The sore throat prevents the child from taking nourishment or drinks, and such children become exhausted. Usually in these cases there is great swelling of the neck from absorption of poisons generated in the tonsils and the lining of the throat. This poison causes inflammation and swelling of the glands in the neck. Such cases are always serious.

Cases suffering from high temperature become delirious early. A certain amount of high temperature belongs to this sickness, as to all febrile diseases, and it is generally in proportion to the amount and intensity of the rash. The natural tendency is for the temperature to subside as the rash fades. But in the meantime the child's life may be sacrificed by this intensity of heat.

Children bear a temperature of 103 to 104 degrees very well for two or three days, but will bear 105 degrees very poorly, and only for a few hours. Such children

must be bathed well in water, commencing at 90 degrees, and rubbed well all over while in the water, allowing the temperature of the bath to fall to 80 or 85 degrees while so doing. Baths should last from five to fifteen minutes. Cold bathing at 50 degrees should be continued on the head all the time the temperature stands at 103 degrees or higher. Where baths cannot be used, frequent washing with water at 60 to 70 degrees must be adopted, without drying the child afterwards.

Baths to reduce temperature should be guided by the thermometer always, as the sensations on the surface of these patients are very unreliable. Often when the temperature is the highest the hands and feet are absolutely cold. Such a condition is always dangerous.

The cooling baths must be repeated often enough, must be cold enough, and must be long enough to control the temperature within safe limits, or these cases will die. A temperature of $102\frac{1}{2}$ to $103\frac{1}{2}$ degrees or less is usually safe where there are no serious complications.

Medicines should not be relied upon in these intensely hot cases. A mother should remember always that a restless, feverish child needs a bath or a good washing with cool soap and water. This should be repeated every hour or two if needed to make the child sleep. This applies *always* to *all feverish children*, in any and all diseases. She should never wait for directions to do this from any physician. This should be her golden rule in feverish children, and if she will then remember never to feed such a sick child, she will always be right in what she does. Never wipe the child dry after these baths. The moisture should be allowed to dry from the heat of the body.

The bowels should be kept moving once or twice daily,

and careful attention should be given to the urinary secretion to see that it is abundant. Where there is a laxative required, one that gives watery stools and acts on the kidneys also is the best. For this purpose Remedy No. 40, answers a good purpose. It may be given often enough to keep the bowels and kidneys acting regularly once or twice daily.

Measles.

This is one of the epidemic contagious diseases of childhood. It is not a dangerous affection with even moderate care, and comes only once in a life time. Occasionally a child may have a second attack as it is growing up, but there is always a doubt about the genuineness of the first attack. The great similarity between the eruption of measles and German measles often causes mistakes.

Measles commence usually as an ordinary cough and cold, and continue in this way for four days before any eruption appears. The cough is caused by the eruption appearing first in the throat and mouth. It also shows in the eyes, giving them a sore and tender appearance. Altogether the child looks as if it had taken a severe cold. On the fourth day the coarse, purplish-red blotches appear on the face and neck, gradually spreading downwards to the legs on the fifth day.

The cough is very severe and barking, with little relief from treatment till the disease subsides. It may result in bronchitis and require treatment for that. Remedy No. 50, should be given when needed to control its severity.

The common idea of keeping children hot with measles and scarlet fever causes a great deal of suffering from overheating the body. In severe attacks this habit

becomes dangerous, as it raises the temperature too high, and children develop convulsions or inflammation of the brain from this cause.

All children with measles, as well as scarlet fever, should be kept comfortably warm, but never hot, and where reducing the covering does not make them cool enough, they should be bathed with tepid or cold water every two or three hours till they sleep comfortably. This treatment should be repeated every time the feverishness and restlessness return.

Measles is severe in proportion to the amount of the eruption, which remains distinct and well marked for two to four days. It fades away in the same manner as it came, leaving the face first.

Cold drinks are refreshing and beneficial to these cases, if not given too freely. After the feverish days of the eruption have passed milk should also be given.

The amount of milk allowable to a child may be calculated by its size. The writer has found by experience that a pint of milk per day, for every fifty pounds in weight of the patient, during a febrile sickness, is a safe and liberal allowance.

This amount will nourish the child sufficiently and will not add to the fever by causing indigestion. The amount for small children can be computed on this basis. Mothers will often think this amount too small, but it prevents all sense of hunger, and is enough to secure good sleep. With this amount they convalesce much more rapidly than with a heavier and more liberal diet.

As the fever subsides the amount of milk may be increased with safety.

Where the fever is very high and the child delirious or very restless a physician should be called.

The rash of measles can not be suppressed or driven in by bathing. The writer has seen the rash force itself out in spots between ice-cold applications when these were used continuously to control the high temperature of an attack of meningitis.

Typhoid Fever.

This is a sickness much dreaded by parents on account of its length and severity. Fortunately infants under two years old are rarely afflicted with it. One attack generally gives an immunity from subsequent ones. It is generally heralded by a season of uncertain health, in which there is no particular complaint but a condition of continued malaise and lack of interest in the usual daily amusements, and an uncertain appetite, with reduced vigor and strength.

There is no particular symptom but a general collection of complaints and minor ailments, before the feverish stage commences. In this condition the physician should at once be called and all his directions observed.

While the mortality in typhoid fever is generally low, this is due to the skill and care given these cases by the profession. There is perhaps no sickness which presents greater opportunities for mistakes in treatment, and few sicknesses where real scientific care and experience play a larger part in the recovery.

Each feature in the case, head, tongue, temperature, breathing, pulse, skin, stomach, bowels, urine and abdomen, becomes an interesting and important study daily. The best nursing, dieting, and attendance are always needed from the beginning till after all evidences of the fever have entirely disappeared, no matter how many weeks that may be.

Many a typhoid case has been sacrificed by one small but wrong feeding, or by one injudicious purgative. The stomach and bowels show the greatest disturbance generally, and should be most carefully protected and assisted in doing their necessary work, in order to obtain good results. No one but the physician should issue any directions for food, medicines or nursing in these cases.

Typhoid fever is a contagious disease, but it is found that the danger lies in the urinary and fecal discharges. These should be disinfected always by keeping a solution of copperas (Remedy No. 113) or other strong disinfectant in the vessel used, and all discharges should at once be removed and destroyed or buried in a place safe from all water supplies.

The typhoid infection is generally found in the water supply. Occasionally it is found in the milk supply, from milk vessels being washed in infected water.

Parents should never attempt to treat or nurse a case of typhoid fever without the directions of a reliable physician.

Diphtheria.

This is one of the diseases most dreaded by parents. Every examination of a child's throat made by a physician or parent has for its object the finding or exclusion of diphtheria. Why is this the case? Simply because it is the one throat disease which kills. All other forms of sore throat are irritations and annoyances which pass away sooner or later. True it is that we may have dangerous or even fatal throat complications in scarlet fever, but even those are considered by many physicians as due to a diphtheritic infection in addition to the scarlatinal one. The breath smells very badly in a diphtheritic sore throat.

Diphtheria is due to a specific germ which develops its poisonous and destructive influence mostly in the throat. Occasionally we find the diphtheritic membrane form on sore places on the skin and in internal organs also. At times the disease will extend down into the lungs or stomach, and commonly the kidneys are oppressed and congested by the undue task imposed on them in eliminating this poison and tissue detritus from the blood current.

Formerly diphtheria was a very fatal disease, and where not properly treated is the same to-day. General medication is of little value, except in the milder attacks of this formidable disease. Where the disease extends into the wind pipe and causes croup, instrumental aid is usually demanded, by putting a tube in from the mouth or through the neck in front. There is no pain or cutting when the tube is placed from the mouth. The child then breathes through the tube, and is immediately relieved of the suffocation which is endangering his life. When the tube is placed in the neck in front, chloroform must be used. Neither of these operations is usually dangerous to the child.

The only reliable treatment in this disease, no matter where it is located, is the free use of antitoxin. This should be commenced as soon as the disease is detected, and should be repeated every twelve to twenty-four hours, as demanded by the severity of the attack. Every delay of a day in commencing this treatment increases the mortality from five to twenty per cent.

The antitoxin is injected under the skin somewhere on the body, and thus immediately enters the circulation. There is no danger in this treatment.

Mothers should always call the physician immediately

when they suspect an attack of diphtheria, or the child shows fever with a foul breath, or pain in swallowing, or refuses to take food.

Itch; Scabies.

This is a fine eruption of red pimples scattered irregularly over the limbs and body, but mostly seen on the soft skin of the arms, back of the hands, and upper parts of the body. It is intensely itchy and the pimples are made into larger sores by the constant itching and scratching. There may be only a dozen or less small pimples visible or there may be hundreds. These pimples are caused by little insects or worms burrowing into the skin, and on the top of each fresh pimple a small vesicle can be seen. After scratching this disappears.

Itch is a contagious disease and found among the dirty classes mostly; but any child can contract the disease by contact with those having it. It will continue till cured by outside dressings, mostly ointments well rubbed into the skin twice daily. Remedy No. 82 makes a good application and will generally cure all mild cases. Where the eruption is severe a physician should be consulted to be sure of the disease and the treatment.

As itch infests the clothing, all underclothes and sheets should be boiled every three days while under treatment. to prevent reinoculation.

The child should then have a good warm bath with plenty of soap. If any pimples still remain of a bright color, the treatment should be renewed for another three days, and the clothes again boiled.

The treatment should again be renewed if any pimples remain. If this is not done properly the disease will soon reappear.

Some people cure itch by scattering powdered sulphur between the sheets of the bed and inside the child's nightclothes. This must be persevered in till the cure is obtained. The child should not have a bath during the treatment, as it is desirable to keep the sulphur in contact with the skin till the cure is effected.

Ringworm.

This is a common affection of the skin in many children. It usually shows in those over two years old and mostly in those attending school. It commences in a dull, red spot and, when first seen, is usually about the size of the end of a lead-pencil. It grows on the outside and dies in the center. The patches vary in size from a ten-cent piece to a fifty, and always are actively red on the outside edge.

General Appearance.—A child may have one or a dozen spots on the face, neck, and in the hair. Those on the bare skin are easily treated, but those in the hair are very difficult and may take months for their cure. Here the hair dies, breaks, becomes thin, and falls out, leaving patches with a few thin, broken hairs, and the skin dry, grayish-red, and scaly. These broken hairs are dead and easily drawn out.

Tincture of iodine or tincture of iron well applied once or twice daily will cure those on the bare skin in a week or two. The ointment Nos. 82, 83, in Remedies, well rubbed in twice daily, for very young children or tender skins, is a milder treatment, equally as effectual, but not so rapid as the iodine or iron. Care should be taken that the ointment is constantly applied and well rubbed into the sore spots every day.

When ringworm enters the hairy scalp there is always

great difficulty in removing it. Here we find industry and perseverance needed. If the above ointment is persistently rubbed in twice daily it will check the disease and soon remove it. Unfortunately the importance of treatment is not always recognized, and the disease spreads till the hair is largely lost. Even under a physician's care the disease will often last months in the scalp, but this is mostly due to the imperfection and irregularity of the dressings. In no eruptive disease are industry and regularity so absolutely necessary as in scalp ring-worm.

As this disease is contagious, the child should not attend school or use any toilet articles used by other children. A light skull cap should be worn to secure perfect application of the medicine, and he should sleep alone.

CHAPTER XV.

DIGESTIVE DISTURBANCES.

Sore Mouth; Stomatitis; Canker; Thrush.

This is one of the very common affections of young babies. So common indeed is it, that many mothers talk of its prospective coming as a necessity in all children.

Sore mouth may appear any time after the first week, and its approach will usually be close after errors in feeding the infant. From this it is apparent that a disturbed state of digestion is the cause of the trouble. This is nearly always the case.

The first indication of soreness is difficulty in feeding. Fever, more or less, in proportion to the extent of the sores, always accompanies it. With this also comes drooling and a foul breath.

On examination, sores may be found inside the lips or cheeks, and on the tongue or under it. These sores may be any size from a pin head to a pea, and are usually white at first and ash gray later. There may be any number from one to fifty, appearing like little specs of curd at first, and afterwards as little ulcers with red edges.

Hand-fed children are much more liable to this condition than nursed babies. The cause is usually too much food or unwholesome food. This condition is called thrush or canker.

The treatment needed is a cathartic at first. Remedy No. 42 is very suitable, and should be continued at greater intervals after the bowels are freely emptied of their poisonous contents. There should be a reduction of the food and drink, and fixed times for giving them. The mother must remember that the feeding should be governed by the power to perfectly digest the food. This is shown by the healthy, yellow, inodorous, mustard consistence of the daily stools.

A child who has stools of this character will seldom, if ever, suffer from sore mouth. Healthy stools in the infant are the key to its health as well as to its successful growth and development.

For the mouth itself many washes are used to heal and disinfect it. Usually powdered borax is successful, as it disinfects while it heals. The writer prefers the dry powder Remedy No. 41, to all other dressings. It does not hurt, can be often repeated, and heals rapidly.

Very sore mouths may require a different treatment and the attention of the physician; but all sore mouths will return or continue sore when the dietary is neglected.

Washing the mouth with a swab, or the finger with a cloth around it, is cruelty, but not the refined kind. A soft brush should always be used; but the child's tongue is the best brush ever used in its mouth, and also the most comfortable one. With the dry powder dressing it is a complete success.

The Stomach—Vomiting.

This is the most abused organ in the infantile body. As the instinct is always to swallow everything that reaches the mouth, and the often false kindness of all around is to give the child or infant all it will swallow,

the limit is only obtained when the stomach, stretched to its utmost capacity, cannot receive more, and to get any relief must vomit the most or all it has thus injudiciously received.

While crying and cross from the distress thus caused by this strained and stretched condition of the stomach, the grandmother or friends present all exclaim that the child is hungry and take offence if the young mother dares to dispute their diagnosis, and refuses to repeat the torture. In their conversation they deprecate her youth and inexperience, pointing with pride to dozens of their own children who through months of vomiting, diarrhea, crying, sleeplessness, and crossness, suffered this ordeal managing finally to survive it, and, like the battle-scarred veteran, carry evidence of their warfare with this abused dietary in the form of a dilated stomach, chronic dyspepsia, and recurring billiousness for the rest of their lives.

These friends do not remind the mother of their children who contracted a fatal diarrhea from this injudicious dietary. These cases are only represented by their tombstones.

The principal symptom indicating irritation of the stomach, is crossness and vomiting. This may be either functional, from over supply, or due to the resulting inflammation of this organ. Most commonly it is only temporary in character, and will be relieved by resting the stomach. Rest in this case means such a reduction in the labor demanded as will come within its comfortable digestive capacity.

In thus reducing the food or drink you will continually have to contend with the imaginary fear of weakening or starving the child entertained in the minds of some friends, or even of some parents at times. This is

quite natural, and would be correct if it were requisite to continue this discipline for a long time; but true kindness to the little one, and the necessities for a quick cure, demand an immediate reduction of the aliment below the vomiting point, even if you have to go down to a few drops every fifteen or thirty minutes or even farther and cut off all drink for a few hours in extreme cases.

This is always the short and successful way to relieve vomiting. Do not be misled by the importunities of friends to give this, that, or the other thing "to settle the stomach," but give *nothing* "to settle the stomach." In no other part of nursing are those four letters *R E S T* so imperatively demanded. Quantity in the vast majority of disturbed stomachs, expresses the key to the disturbance. Fortunately the cure is always rapid where the organ is properly rested, a few hours being sufficient to give relief and re-establish a fair amount of healthy digestion. Care must of course be observed that the offence of quantity be not again committed.

Vomiting is frequently perpetuated by cold drinks, and most commonly so in inflamed stomachs. In inflammations there is little desire for food, but there is for drink, and especially for cold drinks. Nothing gives the same grateful, satisfactory sensation that cold water does to the inflamed stomach, and the tendency is always to take too much. Experience shows that it is commonly returned as soon as it becomes warm, unless the amount taken is very small. Generally it is preferable to give small lumps of ice in limited amounts which can be swallowed whole or dissolved in the mouth.

Frequently it will be necessary to change from cold to hot drinks, given in the same small way. The extremes of temperature are always necessary features for success-

ful results. Quantity and temperature are the only key-words to a cure in vomiting.

While care is being observed in this internal treatment, great assistance can be rendered by mild mustard applications externally over the stomach. These should always be made weak, but very large. The benefit is generally in proportion to the size, as infants bear the effects of mustard poorly, and the large plaster gives the good result with little irritation of the skin. Always remove a mustard plaster from a child as soon as the skin shows any reddening.

The mustard in these plasters should not be more than one-eighth of the flour, making the proportions one-eighth mustard to seven-eighths flour. These should be well stirred with plenty of hot water, so that when spread on muslin the fabric is wet thoroughly all through. When this is applied to the skin it becomes wet at once and the stimulating influence of the mustard is felt in a few minutes. Mistakes are made continually in making mustard plasters too rapidly. The mixture should be stirred continually till all lumps and dryness are completely removed, before being spread on the muslin.

Vomiting in Nursing Children.

Many people maintain that vomiting in a nursing child is a healthy sign. This is an absurdity. The child who vomits much and is yet healthy, merely casts out the superabundance of mother's milk swallowed. This surplus shows so much wasted strength of the mother, and can in no way contribute to the health of the child. This child is healthy in spite of the vomiting, not on account of it. It would do better with smaller nursings, and the mother's strength be conserved that much. For-

tunate is it that nature has endowed these little ones with the ability to unload this surplus food without being sickened.

Vomiting Caused by Unhealthy Milk.

There is a species of vomiting in nursing babies which is not due to surplus food, but to the unhealthy quality of the milk. While this vomiting occurs occasionally with almost any nursing baby from temporary disturbance of the mother, and soon corrects itself, there are cases where the vomiting persists and yields to no treatment. This may follow from birth or commence at any subsequent time. These children never thrive well, and many of them, if not weaned, lose flesh steadily till death ends the struggle. The cause of this is a poisonous or irritating quality in the milk, and in many it cannot be corrected. Great watchfulness should always be exercised in these cases to have the babies weaned before serious damage is done and the rickety condition established. Here the regular weekly or bi-weekly use of the scales with the record chart (Figure 42) determines the necessity for weaning long before the child's appearance demands it.

Babies suffering in this way are cross, pale, and restless, very often having green, slimy, and foul stools. Medicinal treatment of the baby is useless, as it is comfortable only when there is none of this irritating food in its stomach or bowels.

Temporary relief may be obtained by a dose of castor oil or Remedies Nos. 38 and 42.

Habitual Vomiting in Hand-Fed Children.

This is a very common difficulty where children are not nursed, and it occurs at all ages under two years. Most commonly it is due to excessive or overfeeding,

and the stomach is compelled to reject the surplus quantity before any relief can be obtained. While in most cases the error is due to the amount, there are some children whose food is so unsuitable in quality that they are habitual vomiters. This will occur with apparently the most suitable food, but the idiosyncrasy of some children will show that it causes nausea and continuous vomiting, and must be changed or very much lessened in amount.

Where unsuitable food is persevered in, loss of appetite, paleness, and emaciation are sure to follow. Whether the vomiting comes from the quantity or the quality of the food, the error must be corrected before the child can thrive. Generally, these children are greedy and demand large amounts before they are satisfied. In such cases very dilute cream or milk, or preparations of cereals made by boiling instead of baking, are requisite to give satisfaction to their abnormal demands. The food must be very dilute. The reduction or change must bring the amount of food below where vomiting occurs to have success, and this change must be maintained long enough to secure a permanent improvement.

The importance of making such changes in the food and the cooking thereof cannot be too strongly impressed upon the parents of children suffering from recurring attacks of vomiting. Neglect of this feature causes the death of thousands of children annually. Not only do they die in these attacks, but they are also the susceptible patients when the warm weather or epidemic diseases approach. Still farther must it be borne in mind with very young children, that the fatal shrinking of marasmus finds its commencement in continued or oft repeated disturbances of the digestive organs. Experi-

ence shows that these children refuse to recover under any treatment when this vomiting has continued very long.

Medicinal treatment gives only temporary relief; but some assistance must always be given the irritated stomach so that enough nourishment will enter the body to strengthen the digestive glands so they can do better and more work. For this purpose, digestive assistants such as Remedy No. 43 are very valuable.

Damaged Stomach.

When once the child's stomach has been damaged by overfeeding or unsuitable food, it takes great care and attention to the dietary to recover from this injury. During this time little or no advance is made in weight or growth. If the use of such unsuitable food is persevered in too long, the child will be permanently damaged at some point through imperfect nutrition, and will carry the marks of the trouble during all of its life. In many cases this unsuitable food, when not corrected, produces changes from which the child cannot recover, no matter what the treatment or care may be. Such children lose their recuperating power and invariably die.

This is due to the extreme irritation of the stomach and bowels for a long enough time to entirely destroy their digestive and absorbing power. Such children die from marasmus.

To avoid this unfortunate result, the mother must early secure for the infant such a dietary as will prevent vomiting and produce yellow, inodorous stools of a mustard paste consistence. All these features are an absolute necessity in order to secure health, growth, and strength. Without food giving these results, any child is living on

sufferance, waiting only for the first storm, in the form of an acute sickness, to wipe out its shimmering light.

If, on the other hand, one of these children finally improves with the approach of cold weather, the mother must remember the grand struggle for existence through which the little one has passed. She must not forget that though apparently well or better, it is much nearer its grave in subsequent infantile sicknesses than it would have been with a better history. She must also remember that this child will carry weak spots, hidden during health but conspicuous to the experienced physician for all time, which will continually rise up as a menace or weakness in future trials or sicknesses.

No child vomiting frequently is as safe as a child who does not vomit.

No child with foul, pasty, bad colored stools can be equal to the child with yellow, inodorous, mushy stools.

The former stools mean sickness.

The latter mean health, strength, and growth.

Diarrhea.

Many mothers fear that their babies are suffering from diarrhea when their condition is natural. This apprehension arises from the number of stools being greater every day than is usual with many other children. Variety in number is so common that only the extreme frequency should cause this apprehension.

Number alone does not constitute diarrhea; changed color, consistence, and odor must one or all be added to the unusual number to constitute a diseased condition. So long as the infant sleeps its normal amount daily and thrives well, it is not sick. It will not do this with green, slimy, watery, or foul stools. Perhaps in no feature will

the changed condition be so quickly and surely recognized as in the disturbed sleep. This commonly occurs long before other marked effects are noticed.

The bowels in infants are very active and generally move several times daily in the early months of life, but less frequently with increasing age. So long as the stools are yellow, almost inodorous and the consistence of mustard paste, the number per day is correct, whether that be one or twenty.

As the intestines are a continuation of the stomach both anatomically and functionally, save that the lower part or large bowel is also a sewer to carry off the waste excrement that cannot be digested, absorbed and appropriated into tissue, they are subject to like influence of dietary. As the stomach rejects by throwing out all unsuitable quantities and qualities of food, so do the bowels continue the same protective dislodging process in the opposite direction. The doing of this is called diarrhea, because it is an unnatural act, and the discharged contents are also unnatural.

While it could not be said that all infantile diarrheas are merely this protective intestinal activity, yet it can safely be asserted that the large majority are due to unsuitable quantity or quality of the food, others are due to functional derangement from this digestive abuse, or inter-current disease. Even in the latter condition the imperfect digestion allows the food to ferment in the bowels, and the same unsuitable character of contents is rapidly acquired.

Occasionally we find outside influences, such as extreme heat, so depress the vitality that the bowel is unable to perform its duty properly, and a violent diarrheal disturbance is the result.

Viewing all these conditions resulting from imperfect contents, can we wonder that the old dose of castor oil became so popular and was used so regularly and with such good results? Indeed, it would be difficult to suggest any treatment more truly applicable to the situation, and that will give such decided relief for a short time. The greatest harm its use causes is that it inspires such confidence in the parent that the dose is too soon and too often repeated. A moment's thought will show that the oil or other purgative is only reaching and removing a result. The primary cause must be sought out carefully by the physician and corrected or removed, to effect the cure.

Great varieties in the discharges of diarrhea appear and indicate different degrees of danger, but as some of them, those with bloody and watery stools, are very serious, and a few hours will commonly destroy the chance of recovery, no treatment further than the first laxative dose should be tried before calling in the physician. The foul smelling or musty watery stool is perhaps the most dangerous one and also the most rapid in its action. With these attacks all animal food is dangerous.

The regulation of the diet in diarrhea, or better, the temporary exclusion of all diet, is an absolute necessity for some hours or even days. In mild cases the diet may only require to be reduced or altered. This subject commonly reaches away back to the mother's diet, duties, etc., in nursing children, and to the food, drink, health, and breed of the cow supplying milk for the hand-fed child. It will require that careful analysis which only the experienced physician, after careful thought and watching, can successfully give it. Even the physician in many cases finds that to properly correct these errors in infantile

dietary is the most difficult duty he has to perform. Too often it is imperfectly done and the child is allowed to drag along with returning foul smelling and bad colored stools, till some incurable disease or deformity, such as tuberculosis or rickets, is permanently established.

Right at this point do we find the source of the bow legs, knock knees, hump backs, hammer heads, dwarfs, and other deformities that always appear on the streets of all large cities. Were our mothers better educated as to the dangers, to shape and growth as well as life of the infant, that always accompany or follow unhealthy stools in childhood, we would find them quickly demanding of their physician a careful attention to, and analysis of, this difficulty. In no feature of child-raising is careful thought and study more important. In no part of our domestic lives are greater errors committed than in this one, where the safe futurity of the offspring is confidently assured to the anxious mother by meddlesome friends or the unskilful physician.

Why is this the case? (Another one of our inheritances.) Because our young mothers are not properly educated up to that height, in this all important subject, which involves the perfect future of their children. Too often and too long has this subject been cast aside by all as too small to require the intelligent physician's attention and thought, and is thus relegated to unscientific minds, who cannot grasp its importance or contend with its intricacies. Never have I met an intelligent young mother who had this subject plainly explained to her, and had been educated up to its errors, that did not become in a few weeks the best of mothers, fully alive to this important matter, above the nonsensical aphorisms of suggestive friends, proof against the multitudinous recommendations of the

kind, yet in this matter unkind, neighbor. Truly does she become a home missionary, ministering, not to the souls, but to the all important bodies of the coming generation. We need more of these, and in proportion as you faithfully, as mothers or nurses, not only do your duties on this subject well, but also inculcate the proper ideas into those whom you are called to assist, will you aid in this good work. Let it not be said of you, as I have heard it before of others, that your careless, ignorant advice was the commencement of all the stomach and bowel disturbance in the infant, and led up to its non-development, deformity, or even death. Realize fully the importance of giving advice on a subject that carries the future of the child. Do not, like the uneducated, assume to talk on that of which you know nothing. Remember we are away behind on this subject, and it is only by the greatest perseverance, intelligence, and industry that we can bring the digestive care of the infantile community up to that perfection reached in other parts of their development. This is an intricate subject; do not attempt to handle it carelessly.

Absolute rest in the horizontal position is always needed in children with loose bowels. The greater the activity of the child, the more frequent are the stools. Where great heat and fever accompany this disturbance, cold wet cloths should be applied to the abdomen continuously, or cool bathing of the surface should be resorted to till the fever subsides. Cooling drinks are also allowable in small quantities, with little or no food, till all the fever subsides. In medicines, Remedy No. 39 may be used for mild cases after the bowels are first cleared out with castor oil or Remedy No. 42. In all severe or obstinate cases the physician should be called in.

Feeding may be resumed and increased as the yellow, well digested character of the stools says it is safe.

Colic.

This is a common disturbance in children, and always due to imperfect digestion. It occurs in both nursed and hand-fed babies, and may appear in the most healthy from some error in the last meal.

In nursing babies this error is of course due to some irregularity in the health or habits of the mother or change in her dieting, which can easily be traced if the child has been previously free from such distress. But where the colic is persistent, as in some babies, for months in succession, with constantly returning green, gassy stools and very disturbed sleep, greater difficulty will be encountered in finding the true cause of disturbance.

Many of these children thrive in spite of their crossness. So frequently is this the case that many mothers have come to look upon a colicky baby as a healthy one; but, on the other hand, many of these children do not thrive or grow and present a sallow, pale, unhealthy color.

Certainly, colic is not an advantage to any child, and its presence should always be considered the result of an error somewhere. This error in nursing children may be due to poor health, extreme exercise, mental condition, unsuitable food, or other disturbing agencies, which spoil the mother's milk.

Some mothers cannot, under the most favorable circumstances, secrete a good nourishing milk, suitable for their children, and continued digestive disturbance with colic and emaciation of the child follows its use. Such mothers should always avoid nursing their own offspring.

Even the moderately frequent repetition of colic endangers the success of the little one, and a solution of it should always be sought for in the quality or quantity of the food. This rule applies to both nursed and hand-fed children.

In hand-fed children the great tendency is to overfeed. In fact, except with mothers specially educated on this point, it is the rule to do so. Such children are always colicky and poor sleepers. The only rational treatment is to carefully correct and adjust the food and amount thereof to the digestive capacity of the child. Then the colic invariably disappears.

Temporary relief is frequently obtained by giving a little lime water, half to one teaspoon, in water at each nursing or feeding, or Remedy No. 52. These relieve the acidity and colic due to it in over-stimulated stomachs.

Irregular and too frequent nursing commonly causes colic and green stools. In these cases the different qualities of milk made at irregular nursings is the general cause of the pain. Regulating the time between nursings will generally correct this source of trouble.

Many mothers who have plenty of milk make the mistake of hand feeding also during the first six months, thus causing colic and sleeplessness. While feeding can be done successfully to children over six months old and cause little or no distress, but on the other hand be very advantageous to many of them, yet the opposite is generally the case in those under this age. The inference is, of course, that no feeding should be done, where there is not the necessity for it, till the child is old enough to digest thoroughly the new food.

Temporary relief is obtained in attacks of colic by emptying the bowels of the irritating material with a

cathartic (Remedy No. 38) or enema. Frequently relief can quickly be obtained by giving some aromatic drink, such as peppermint, aniseed, catnip, etc. In fact, any diffusible aromatic or spirit may be used successfully. Gin and whisky are frequently used, with very quick relief, where the colic is due to gassy accumulations in the stomach or upper bowels. It is always well to mix them with some alkaline solution, as soda or lime water (Remedy No. 37).

In addition to the internal remedies, friction or heavy rubbing of the abdomen before a hot fire will assist materially in relieving extremely severe attacks. Frequently mothers cause colic by nursing the child too long. Just as we suffer from indigestion from overeating even suitable food, so do infants suffer likewise from the same cause, through gassy formation in the bowels. Mothers should carefully regulate the amount the baby takes at each meal. Never allow the infant to draw enough to cause vomiting, and when colicky do not allow it to draw to satisfaction. Such mothers should watch the clock while nursing, and stop the infant soon enough to prevent overloading the stomach. Those infants, if underfed, will become restless and hungry before the next regular hour for feeding. Unless they do this the mother need have no apprehensions lest the child be underfed. Such children will always thrive better on the amount they can digest comfortably than on a larger amount.

Children suffering continually from colic with green or slimy stools should have a change of food at once, if decreased feeding does not give relief from pain and procure yellow stools.

Children with continued green stools are always in a condition dangerous to health or development.

High Summer Mortality.

The greatest mortality among children occurs during the summer months. This is caused by the heat, consequent thirst, over drinking of milk, rapid decomposition of food, and reduced digestive power.

While this applies to all children, it is most particularly applicable to those who are hand fed, and increases in inverse ratio with their age. From this it is apparent that children born in the late winter and spring are in much greater danger, than those born in the preceding fall and early winter, where the same diet is used, and the same skill prepares the food.

In 1894 the writer obtained from the health office of Detroit a list of all the children under two years old who died during the months of June, July, and August of that year. These are the months of highest infantile mortality, and also the months where digestive disturbances are most fatal in all large cities of the northern half of the globe.

In order to obtain clear and distinct knowledge of these fatal results and the conditions leading up to them these lists were placed in the hands of two medical students, Dr. Reilly and Dr. Kempf.

These physicians made a house-to-house canvass, inquiring carefully into the dietary, age, and previous health of each case, noting particularly whether the infants were nursed entirely, hand fed entirely, or nursed partly and hand fed the balance.

The whole number of cases on this list was 467. Of this number 294 died of stomach and bowel affections while under one year old, and 43 died of the same diseases when between one and two years old.

Of these 294 under one year old, 244 were hand fed, and 50 were nursed by their mothers.

The only inference that can be drawn from these figures is that during these three months, the most fatal to infants, nearly five hand-fed children die for every one nursed by its mother.

What stronger evidence can we have in favor of maternal feeding than the above. True it is that this ratio was established by deaths under all conditions of life, and by all nationalities, mostly Poles, Italians, Germans, Irish, and American.

With careful feeding by intelligent mothers properly educated on this subject, the above proportion of deaths in hand-fed infants could be reduced at least 75 per cent.

These errors in feeding do not occur in the hot weather alone. In the cool weather infants resist such errors for a time but show irritation and disturbance, which culminates too often in serious sickness as soon as the hot weather arrives.

Auto-Intoxication.

What is this? Simply intoxication from products manufactured in the body by unhealthy digestion. The healthy adult buys and swallows his intoxicants, or poisons; the sickly or improperly fed child manufactures his intoxicants, or poisons, inside his own anatomy. There is only a difference in the method of obtaining them, for the results are equally harmful and depend entirely on the nature of the intoxicant and the quantity received. Few parents realize that the meat, milk or eggs, which are the very life and energy of the infant when properly given, are also the death of hundreds and thousands yearly, through careless or lavish use. Also, that the oatmeal, rice, or wheat products, which are so delicate and

nourishing when properly prepared and carefully fed, become the strongest irritants and poisons when these rules of preparation and feeding are transgressed.

The same results follow the use of fruits and even water to a certain degree. Intelligence must always govern their use. The wonderful reserve and reviving power which nature has placed in all infantile organs is what saves the lives of so many who daily swallow too much of the suitable as well as the unsuitable.

The bad results of auto-intoxication are seen in many forms of disease, such as fever, indigestion, toxemia, diarrhea, diseased brain, liver, skin and kidneys. These are only a few of the results daily seen and directly traceable to this auto-intoxication.

Most of the disturbances are merely functional, and subside rapidly with a correct diet; but there are many cases where permanent deformity and incurable organic disease are established.

Indigestion; Dyspepsia; Catarrh of the Stomach.

These are a few of the terms applicable to disturbances of the stomach, or the process of digestion. As these disturbances may mean any intensity, from a mild vomiting or regurgitation of gas to a most intense colic or severe diarrheal attack, from a slight fever and sleeplessness to a severe meningitis, from a little drowsiness and stupor to profound toxemia, or from a foul breath to an alarming auto-intoxication, the reader can realize how impossible and unnecessary it would be for the author to treat this subject correctly and independently under this heading. It has been the object of the writer in the other pages of this chapter to present the errors of feeding and their inevitable results in such a manner that the

reader of them will understand the mysteries of indigestion and its bad results more thoroughly and clearly than by reading any separate article on the subject.

Indigestion means a disproportion between the food entering the stomach, and the fluid secreted there to digest it.

Dyspepsia may be defined as the uncomfortable sensations and results evinced by the patient while trying to digest more food than he has gastric juice to properly convert into healthy nutriment.

Catarrh of the stomach means irritation of the stomach lining and the glands contained therein, due to contact with the fermenting or decomposing food resulting from the indigestion and dyspepsia above described.

As indigestion results in producing some one of the other diseases or disturbances described in this chapter, that treatment found successful in curing each of them is the proper method requisite in each case.

The foundation or principle involved always is to first give the overworked stomach REST. After this, to properly adjust the labor of digesting the food to the strength and amount of the gastric fluid secreted is always the true and only way to a permanent cure, and the proper growth and development of the infant.

The key by which success is early recognized is the production of healthy, well digested, inodorous stools. When once these are obtained the mother or nurse should never allow any additions to, or variations in, the diet made without their correctness being proved by a continuance of the same healthy stools.

A change in the quality of the food or a reduction in the amount is always an absolute essential in treating or avoiding attacks of these diseases.

Constipation: Its Causes.

While this subject seems to be a very simple one, yet the extreme obstinacy of it under treatment shows that it must be complicated indeed. Very few mothers realize the difficulties that this little subject presents. To do so necessitates a knowledge of the many causes leading up to this result.

Almost the first duty devolving on a mother or nurse is to overcome the often constipated condition of the newborn child. The accumulation of meconium in the child prior to birth, and its tough, glutenous nature demand undue intestinal effort to move it outward. This causes griping pain and restlessness until a free evacuation of the accumulated mass has been obtained.

Where the child does not secure this naturally, it should not be allowed to continue in this griped condition more than two or three hours before half a teaspoon of castor oil is given. This may require repetition next day if free stools, and consequent ease, from the first dose are not obtained. Until all this green mass is removed there can be no lasting comfort or peace. The treatment is traditional, sensible, and correct. Our ancestors did it for generations back, and rightly so, but unfortunately we have learned to carry their purging ideas too far. The bowels, after the first load of meconium is removed, should, and nearly always do, move regularly three or four times daily. When not regular it is due to one of the following causes:

1. *Abuse of laxatives.*
2. *Unsuitable food.*
3. *Digestive derangements.*
4. *Imperfect development of the bowel.*
5. *Insufficiency of food.*

The particular reason should be ascertained in each case, and the error corrected at once, before the child's health is permanently damaged by the abusive use of purgatives in a vain effort at correction.

Abuse of Laxatives.

While to the uninitiated, this may seem only a small matter, yet to the experienced parent or physician it is of great importance. This is a matter that is too often overlooked by the physician; too often usurped by the "natural born" nurse or friend, and too little understood by the intelligent young mother. Only when damage to health and a persistent constipation of the baby has worried the mother for weeks (which she lamentingly asserts no medicine relieves) will the physician s attention be drawn to this matter.

On inquiry he finds that she commenced giving castor oil or some other laxative every three or four days as a something "good" for the child, and not necessarily for any constipation. The child may have been cross, had bad colored stools, or did not rest well, and the first dose or two gave apparent relief. The early or regular repetition of the laxative soon showed that constipation, which must always follow this abuse of the child's digestive organs.

The oil or other cathartic empties out all the contents of the alimentary canal, and also draws enough serum from the blood to liquefy the stools and cause easy evacuations. Here we see the direct loss which must always follow the use of any laxative. Not only is all the excrement in the bowels removed, but all the semi-digested food and a portion of the serum of the blood are also thrown out as waste material.

This shows a direct loss of nourishment in food and a greater loss of nourishment in blood serum. The total loss for each cathartic given to child or adult will represent all the nourishment previously taken for one to three days, according to the severity of its action. It can readily be seen that it requires only the frequent repetition of castor oil or any other laxative to produce an actual condition of invalidism and weakness.

Prior to such a condition of invalidism we always find produced an obstinate condition of constipation. How can it be otherwise? The bowels naturally move only when they have the strength and proper stimulation thereto by suitable contents. If we wash out with oil or other cathartic all their contents, must we not wait till the new supply of food is properly digested and enough waste is accumulated in the bowels to give this stimulation for an evacuation. This requires from one to two days at least, according to the age and digestive power of the patient. Experience shows this must be so by the length of time that always elapses after a single cathartic before the bowels again resume their normal action in a perfectly healthy subject.

Now we must remember tnat all the secreting and excreting organs of the body, as well as the nervous and muscular functions, receive healthy stimulus and power from the blood only, and that in direct proportion as the blood is healthy, vigorous, and abundant. If by cathartics we remove part of the blood serum, we certainly reduce its strength and nourishing power an equal amount. These must be replaced by food; but while the equilibrium of the blood is being thus re-established, not only is the child's natural resistance to diseases of all kinds lessened, but all the different organs—stomach, liver,

kidneys, and bowels—are poorly nourished and weakened. This weakening of the bowel adds to its liability to become constipated by cathartics, and is in direct proportion to the severity of the catharsis. No weak or tired organ or part can do its work well.

Cathartics Irritate the Bowel.

There is yet another unfavorable view to be taken of repeated catharsis. Irritation of any surface of the body, either internal or external, causes a thickening of the superficial coating of that part, and a corresponding lack of sensibility. This is Nature's plan of protection, also her way of meeting extraordinary conditions, and is plainly shown in the thickening of the skin and numbing of sensations on the palms of the hands, the soles of the feet, and all parts of the body subjected to extra friction or wear.

This is also well seen in the resistance the skin soon shows to the blistering power of mustard, turpentine, and very hot water, by frequent repetition of any one or all of them. This applies to all strong blistering or irritating substances until they lose all power to produce an irritation. We have daily proof of this natural law of resistance to irritants which the body shows to the continued use of most medicines, either internally or externally; and in no part is this proof more general than in the result of the frequent abuse of laxatives practiced by humanity. Is there anything more common than to hear daily in conversation that "one pill was enough to act vigorously at first, but now nothing less than five or six has any effect." Some will go far enough to say they "can take the whole boxful without any effect." Others assert that "the pills are not so good now as formerly." Those who drink

laxative mineral waters soon arrive at the same hopeless result, finding that the dose needed for a laxative effect must be measured by the goblet rather than the original tablespoon. This law of resistance applies to the abuse of these remedies, not to their occasional necessary use for a definite purpose, and includes the whole family of medicines that act as laxatives, be they vegetable or mineral in their origin.

This resistance and consequent loss of power is in reality Nature's way of protecting herself against the ignorance, thoughtlessness, meddlesomeness, habit, or love of heroic results which, unfortunately, too often characterize humanity.

This condition should be read as Nature's silent but emphatic declamation against cathartic abuse, and she perseveringly increases it at every repetition, until the decreasing strength and increasing constipation of the patient silently but unmistakably show the folly of this abusive and insane course. These facts are applicable to humanity at all ages, from the cradle to the grave.

Laxatives are Allowable.

You ask then, "When are laxatives allowable or beneficial?" They are allowable and beneficial:

1. In the extremely dry or solid condition of stool where some liquid is needed to soften it before voiding, and thus escape the pain, distress, and fear caused in the child by passing such a large, hard stool.

2. Where there are cracks or fissures in the anus. These are generally caused by extreme stretching of the bowel in dry or difficult stool.

3. Where the child is griped and distressed by green, lumpy, or slimy stools, for these always cause colicky

pains, being the result of fermentative indigestion. There is no relief till they are removed, and the gas they develop also carried out.

4. In the beginning of any febrile sickness, where the rise of temperature always checks digestion. Here we often find the sickness due either to the quantity or quality of the food, and its removal gives a cure. Where this is not the cause of sickness, it is likely to add to the approaching fever by its fermentation and should always be removed early.

While there are other and extraordinary conditions where laxatives are allowable or even demanded, the foregoing are the principal ones commonly presenting themselves to the mother. A careful review of these four conditions occasionally requiring laxative treatment will show that they are merely the results of errors in the digestive tract; and being results only, a cure cannot be expected by removing these results. Consequently, the waste of blood serum, semi-digested food and strength by catharsis, cannot offer a rational cure or even the hope of lasting relief. In fact, it must be seen that its repetition only insures a permanently increasing condition of pain, trouble, and distress, through establishing the constipated habit.

You will thus see that an intelligent analysis of the cause of constipation must always be thought out before any proper treatment can be applied. While we admit the occasional necessity for a purge, we emphatically deprecate repetitions of them.

Perhaps there are few derangements that demand such careful study in each case to find the exact cause as does

constipation. With the purely nursing child it does not occur as often as with the hand-fed one. In fact, it is not often present when the child is nursed only.

Unsuitable Food Causes Constipation.

The fact that a child becomes costive after weaning, and that while nursing the addition of many other foods also causes constipation, is undeniable proof that an improper diet is a common cause of constipation. A few facts are prominent and suggestive. Oily or fatty substances are laxative, such as castor oil, olive oil, cream, bacon, meats, butter, and lard. These substances are also slow driers when compared with watery mixtures. This is forcibly illustrated in the results found by adding a tablespoonful of any oil to an ordinary bread poultice. If the poultice is made of bread and water alone, the heat and absorption of the skin where applied will dry it out in an hour or two, and leave nothing but dry, crumbling bread. If, on the other hand, an addition of some one of the above oily substances be made, we will find the poultice soft and moist after many hours' application on any surface of the body.

Now if we apply this non-drying idea to the internal economy, we find it generally produces the laxative results we desire. While we could not claim that the purging which castor oil produces is simply due to it as a non-drying substance, yet we cannot deny that the soft, easy stool and healing effect which its use produces are mostly due to its oleaginous character. This means that it acts as a softening lubricant, reducing the friction and irritation which always result from the passage of dry or irritating feces over the mucous membrane of the bowel.

While we cannot claim that the waste foods which

make the feces are dry, yet we know that when they are mixed with water only, they are subject to the same drying influence from the bowel that the bread poultice is from the skin, and that the same rapid drying result follows is proven by the dry stools and constipation. Now this can be avoided, as in the poultice, by the addition of enough oily or fatty material to the dietary.

As we would not be satisfied by oiling one poultice and omitting it in the next, so we cannot be satisfied by oiling one meal and omitting it in the next. Each portion or mixture of food requires the same fatty proportions. With cream, Nature oils all the milk.

This leads us to consider the component parts of the child's dietary. The mother's milk contains four per cent. of fat, which evidently is the amount Nature considers necessary in this particular food. But this amount of fat may and surely cannot be a rigid proportion for all classes of food. It must be varied according to the actual constituents of the diet used daily.

Increase the Fats in Constipation.

Where we find a child's bowels regular while nursing its mother, we should remember that the constipation that develops on giving other dietary to that child is most commonly due to a disregard of the correct proportion of fat required in the new food. You should always watch carefully the effect on the bowels of every change in the dietary, and at once vary the amounts of fat according to the indications—more fat for constipation, and less for a relaxed condition.

Cow's Milk is Constipating.

Where you change from human to cow's milk, you should always remember that there are three times more of the casein or cheese-making constituent in cow's milk than in human milk. As you well know, cheese is a very constipating food, so must you be prepared to find this effect on the child fed on cow's milk. Now, here is a condition where you must use your intelligence, and it illustrates also what will commonly occur with many kinds of food—condensed milks, prepared foods, etc.

It would be absurd for you to give a constipating food and expect to always overcome that by increasing the fats. Rather must you adhere to Nature's four per cent. of fats and adjust the other food constituents to that amount. Now you ask, How can we substitute cow's milk then, without increasing the fats? Right here can we make application of the principle that *food must always be adjusted to a child's digestive capacity.* Unless with increasing age, it is not likely that the child's stomach will digest more than the four per cent. of fats without nausea and loss of appetite.

Decrease the Casein.

As soon as you find the digestion impaired by increasing the fats (cream), if the child is still costive, you must decrease the casein in the milk till the bowels become regular. The method of doing this is fully explained on page 87.

This same principle must be applied to all changes of food, and to be successful in doing it, you must never make more than one change at a time, and prove its laxative effect for two days before making another change. Unless you observe this precaution always, you will surely

cause confusion, not knowing which change has disagreed with the child. All this implies that a percentage of fats must be used suitable to the food consumed and to the age of the child—more being allowed as the child grows older and the digestion demands it.

What Fats are Suitable.

As to the kind and amount of fat given daily, we find inherited ideas commonly obstructing us. While we have spoken of castor oil on account of its availability and the general knowledge of its use and effects, we do not for a moment advocate it as one of the dietetic fats, nor would we do so of olive oil commonly, though there are individual cases where the latter could well be used once daily.

Animal Fats are Mostly Needed.

Our application of the term *fat*, refers mostly to animal fats and their compounds—fresh meats. It is an absolute necessity that this fatty regimen should be a *food* in the veriest sense, an item that can be continued regularly and indefinitely without the least thought or apprehension of unfavorable or damaging effect on the child. In fact, it must go farther; it must *add to* instead of *taking from* the child's vigor, health, and development. As such it can be continually made part of the child's dietary, and always an essential feature thereof.

Cream and Butter instead of Cod Liver Oil.

For nursing, and hand-fed children, cream and fresh butter, cod liver oil, and bacon are the most suitable forms in which to administer fats. While this is not often needed in nursing children, there are some cases of weak milk

that are greatly benefited by also feeding cream or one-fourth to one-half teaspoonful of melted butter three times daily. In hand-fed or bottled babies, increasing cream instead of milk is largely beneficial in regulating the child's bowels, and while doing so it gives infinitely greater benefit to the child constitutionally than to the bowels locally. In fact, this form of treatment gives the constitutional effect so long and worthily claimed for cod liver oil; and when judiciously and honestly carried out avoids, by these pleasant means, the necessity that often arises in delicate, tubercular, and scrofulous children for administering this often nauseous medicine.

Meats Fed After Weaning.

As children grow older their digestive organs become stronger, and the fat compounds—fresh meats—may be added to the dietary. Right here we run against inherited convictions, teachings, or thoughts adverse to this dietary. While some utterly denounce meat as unsuited to children just weaned, others modify their opinions by only admitting broths. With all it is a fear of the something indefinitely injurious in the future. Therein lies the mistake. If, with it, the child's bowels are healthy and regulated, the appetite good, and no vomiting occurs, fresh meats are beneficial, and all fear for the future welfare or strength of the child will be correspondingly lessened by this addition to the dietary.

Parents should remember that milk and meats are the same type of food in different forms, and if the child can live wholly on one up to weaning, it can receive no harm from the moderate use of the other after weaning, especially when it regulates the bowels and is one of the regular articles of food they daily consume themselves. Too

much apprehensive dread of the indefinite something adverse in futurity for our offspring, is shown on this subject. They are of us and part of us, and should be considered as such and treated accordingly. When meat is fed to a child it should be combined with bread or potato, chopped very fine, and milk excluded or lessened at that meal.

Indigestion Causes Constipation or Diarrhea.

Digestive derangements are a common cause of constipation, and also of diarrhea. It seems strange at first sight that these two opposite conditions should have the same apparent cause; but when we remember the complexity of organs, glands, and secretions which are combined for digesting and changing our food into nourishing aliment, we can easily realize that diverse and opposite results may be produced according to the particular part, gland, or secretion that is disturbed. Also when we look at the great diversity of foods, as well as quantities thereof, that are fed to our little ones daily, we must realize that it is an impossibility to achieve the same result under all these diverse conditions.

It would be impossible to thoroughly analyze, and no parent can fully realize, all the unhealthy changes in digestion causing these opposite results. A few prominent facts should be carefully noted and always respected. These derangements may be caused by:

(*a*) *Unsuitable Food.*—The new-born child should be fed mostly on raw or pasteurized milk until eight to ten months old. As it cannot digest much starchy food during this time, the feeding of them will cause indigestion and consequent constipation or diarrhea. While some babies with strong stomachs seem to bear small

admixtures of bread, potato, oatmeal, etc., it is because the amount is small and is mixed with the mother's milk, which is easily digested.

(*b*) *Overfeeding.*—Even suitable food is a most prolific cause of indigestion when fed too freely. When unsuitable and also overfed, there can be no success till these errors are corrected. This child may have both constipation and diarrhea alternately, and surely will become rickety if this dietary is continued. Certainly it will be cross, restless, sleepless, subject to vomiting, and thrive poorly. Too much food of any kind shows in the stools, but is not always appreciably injurious. It is a common thing to see a healthy nursing child show milk curds in the stool. These cause little inconvenience unless decomposition occurs from their extra amount or frequent repetition.

Decomposition is evidenced by the gassy condition of the stomach and bowels, the foulness of this gas, the restlessness and disturbed sleep, the thirst and vomiting of the child, and the unnaturalness of the stools in odor, color, and consistence. These children always appear hungry or thirsty, and must have the amount and quality of the food reduced within their digestive capacity before there can be any reliable or lasting improvement in nutrition, and subsequently in the general health and growth of the child. Failure at this point is sure to perpetuate their constipation or diarrhea, no matter what medicines are given, and damage the child for all time by laying the foundation for future diseases.

Results of Neglecting the Dietetic Errors.

Too great importance cannot be attached to the absolute necessity of persevering, for months if necessary, in

our efforts to correct by dietetic means, that constipation or diarrhea which is due to imperfect quality or quantity of food. Perhaps in no feature of our care, thought, industry, and planning for the future of our children are we, as parents, so weak, ignorant, and unsuccessful as at this particular point. This is due to our training, our inheritance, our confidence in a mother's instinct, the advices of friends equally unskilled in these matters, and particularly to the laxity, looseness, and carelessness with which physicians prescribe proprietary or patent foods, condensed milk, etc., or refer the whole subject of feeding to the mother herself, as of too little importance to demand their attention.

When we claim that this matter may lie at the bottom of the whole future success of that child physically and mentally, we do not exaggerate the actual facts. When we claim that it means the actual life or death of fifty per cent. of those hand-fed and twenty per cent. of those nursed every year, we merely state what statistics prove. The remaining ones who have lived through this abuse carry the evidences of bad dietetics, only too often, for the rest of their lives. They are living proofs against their dietary, instead of flattering evidences in its favor.

Imperfect Development of the Bowel.

This will commonly interfere with the regularity of the stool. When this deformed or imperfect intestinal condition is not enough to interfere with its capacity or size, it seldom does more than cause a sluggishness of natural stool. In no other way is this injurious. These children are comfortable, rest well, have stools of proper color, with fair consistence, and thrive satisfactorily. Their only difficulty is in voiding a stool. They need a little

assistance by enema, soap, or other suppository to start the bowel into action. To treat these cases by laxatives is establishing an evil greater than the previous one. Such children usually grow out of this form of constipation as the bowel develops, and are not damaged by it. Usually they are a year or more in age, strong, active, able to run, play, and consume solid foods freely before the bowel assumes regular daily habits.

Where deformities exist in the bowel, and the lumen is reduced by constrictions, the tendency will be toward a complete obstruction of the stool. These cases are rare and require surgical procedure.

Insufficient Food.

Insufficiency of food is a common cause of constipation. Occasionally it is a fact that there is not enough food given for a daily stool. This occurs commonly for a short time during acute sicknesses and is a necessary or salutary condition, as the digestive secretions and powers of assimilation are then temporarily under check. This is Nature's plan. We should bear in mind that stool is mostly a resulting waste from the food; and as such to be natural and healthy must coincide in amount with the food consumed.

This is a feature too often overlooked by parents. Many in their anxiety feel that the bowels must move regularly, in order to have health or to avoid serious complications that may arise as a consequence of constipation. It is needless to say that damage is often done in actual sickness by overzealousness in this plan. When it is needed that the strength of the patient be carefully reserved for the continued wear of a lengthened sickness, it is sheer folly to waste it in unnecessary efforts at stool.

Thousands of lives, young and old, are yearly sacrificed on the insane altar—"Of course have a stool every day at least." Could we calculate the fortunes made and lost on this idea by educated (not on this point) mankind, we would see a wofully striking evidence of all grades of humanity religiously, persistently, and stupidly agreeing on this one point at least. Alas! for our inheritance, how many centuries back must this idea have been started to be so universally worshiped to-day, when on religion, politics, and all other subjects we are divided thinkers.

Constipation in Chronic Indigestion.

There is also a class of cases in which there is a chronic inability to partake of and digest a sufficient amount of food. These generally result from a previous condition of overfeeding. In these there is a debility and paleness proportioned to the insufficiency of food. What folly it would be to expect regular daily stools here. And yet such is commonly the case. Nothing is more important than always to bear in mind that all our efforts must be aimed at building up and developing the child by ever and always adding to the body more than we take from it. Never is the latter allowable except in acute sickness for a short time, and then only for a definite curative object.

Children suffering from chronic indigestion must have their food changed to meet their impaired digestive capacity, and also receive assistance with such medicines (Remedy No. 43) as will aid digestion, thus enabling them to partake of and appropriate sufficient food to nourish them well. When this is properly done, we find the bowels, like all other parts of the body, are strengthened and able to properly perform their daily duty.

Temporary Treatment of Constipation

"How to move the baby's bowels" is the oft repeated question. The different means may be enumerated in the order of their suitability, using the most harmless first:

Warm water injection, using from a tablespoonful upward, according to age.

Warm soapsuds, using same amount.

Warm water and glycerine, three of the former to one of the latter. The proportion of glycerine may be increased, but mothers should remember that this irritates very much at times, and should then be avoided.

These injections may be given with the soft rubber ear syringe (Figure 3) in very young babies, and with the soft rubber and hard nozzle syringe (Figure 4) in older ones. Where injections are not convenient:

The soap stick (Figure 43) may be used, or

The glycerine suppository where the soap stick does not work satisfactorily.

In cases of obstinate constipation not relieved by the above means, from one-half to one teaspoonful or more of sulphate of magnesia may be dissolved in one or two tablespoonfuls of warm water and injected with the intention of having it retained for an hour or two to soften the stools before moving the bowels. Care should be taken to hold the bowel by pressure and prevent the immediate return of the liquid. If held in this way it acts the same as if the magnesia was swallowed.

In some cases, one to four ounces of warm sweet oil is very successful as an injection. This must be given with a hard rubber piston syringe having a large nozzle, and with some force (Figure 5), as it is more difficult to use than water.

In all these manipulations of the bowel, great care

should be observed to cover well all objects entering the bowel with oil or vaseline. The anus and the rectum are very sensitive and soon become irritable when lubricants are not freely used.

Soap sticks and suppositories should never be made larger than necessary to stimulate the bowel. They should be pointed and made smooth with the knife or pressure, and then well oiled before insertion. The finger placing them should always be oiled also, and then passed up the bowel to the first joint. This is necessary to secure their retention till dissolved.

Where none of these means succeed in moving the bowel, the mother is driven to use some laxative, such as castor oil, cascara, syrup of rhubarb, or syrup of senna, or Remedy No. 38. Children cannot usually swallow pills of any kind till they are eight or nine years old, so their medicines must always be in a liquid form.

Every effort should be made to correct such constipation by changing the diet. This can usually be done by adding or feeding butter, cream, lard, or sweet oil to children under one year old; and by adding fruits, meat, oatmeal, or brown bread to the dietary of those over one year old.

Where medicines have to be given internally for habitual constipation, they should be given in such small quantities each morning as will produce one stool (not more) each day. This medicine should not be given at night, as larger doses are then required.

In hand-fed children under one year old, the constipated habit may be frequently corrected by sweetening the food with dark brown sugar, or dark syrup, instead of white or milk sugar.

Worms.

Let me introduce you to another scapegoat of our modern civilization, one on whose back is heaped an immense amount of our own errors. Now I would not deny that there are errors properly belonging to these repugnant creepers, and I am willing that they should carry all their just load; but I do object most emphatically to having all sorts of dangerous ailments ascribed to their loathsome presence when they are not present in any form.

It has become altogether too popular to believe that our little children, even our nursing babes, are infested with these entozoa. From whence could the latter swallow the eggs necessary to breed worms? How can a nursing child obtain them, and where even will a well-fed child obtain them? Will not proper cooking destroy any insect or oval life? Will not cleanliness also obviate their presence in food or water? Why, then, condemn your own self or your neighbor of dirt and filth by ascribing fever or restlessness in the little babe to the presence of these loathsome creatures?

True it is that they appear occasionally in children running around out of doors and in dirty places, eating reprehensible food, uncooked matter, or drinking unclean water; but even among these, experience shows they are not present one time for every hundred they are claimed to be.

There are, indeed, no symptoms which belong to worms alone, and by which their presence can be known, except by seeing them. All others are only conjecture, and due to other causes than worms in ninety-nine out of every one hundred cases where worms are commonly believed to be

present. The majority of worm symptoms are due to overeating or improper food.

Worms produce symptoms only through irritation of their surrounding habitat. Green fruit, raw food, overeating, unsuitable dietary, all do the same thing. We cannot distinguish between their results by the symptoms produced.

When any doubt exists about the presence of worms, Remedy No. 56 may be given any time or during any sickness, to definitely settle their presence or absence. This will assist in deciding the proper treatment needed in the sickness

Figure 52. Thread Worms.

Thread worms (Figure 52), when present, can always be seen in the stools. As they always occupy and live only in the lower end of the bowel, they are usually suspected when the child continually shows itching of the anus. They are best treated by injections, such as Remedy No. 57. These should be repeated in small or large amounts, as best borne by the bowel, every few days till all are removed. Parents fail in removing these pests by not persevering in the treatment.

Tapeworms (Figure 53) are not common to children or adults, but occasionally are found in both. They also appear in the stools, in sections from half an inch to a

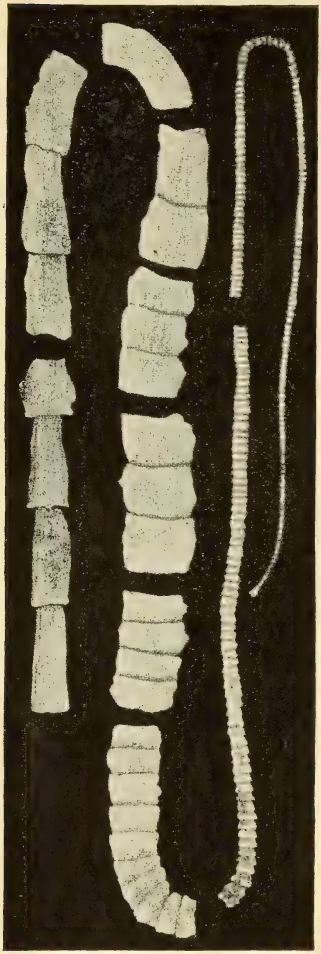

Figure 53. Tapeworm.

Figure 54. Round Worm.

yard or more long. These sections are whitish in color and bound together like flat beads on a narrow tape. They vary in width from one-eighth to one-half inch.

Children having tapeworms are pale, lean, and nervous, with voracious appetites and distressed stomach when empty. Only a physician can remove these pests, and he often finds great difficulty in doing so.

Round worms (Figure 54) occasionally crawl up into the throat and cause great consternation and nausea till ejected from the mouth.

Fever and convulsions are often ascribed to the presence of worms. The writer has not seen them produce these results often, and thinks they act mostly by debilitating the child.

Toxemia.

What is toxemia? This word is derived from two Greek words which mean *poison in the blood.* Toxemia is the foundation or condition which causes changes in parts of the body and gives rise to many diseases known by different names.

The infant nursing a mother, whose milk is disturbed by overfeeding, wrong food, mental distress, fright, or extraordinary labor, and consequently suffers with drowsiness, nausea, vomiting, or loose bowels, is a victim of *toxemia.* The poison exists in the unhealthy mother's milk, and through digestion enters the blood of the infant.

The hand-fed infant who receives the wrong kind of food, or too much of the right kind, through indigestion shows one or more of the above symptoms, and is also a victim of *toxemia* from imperfect digestion.

The infant who is nursed over twelve months, and becomes pale, with occasional vomiting and loose bowels, is a victim of toxemia. The mother is nursing longer than her milk is good.

The mother who persists in nursing an infant with

green stools when it does not gain over four ounces weekly, is also compelling her child to suffer from *toxemia.*

The mother who weans an infant rapidly without gradually educating its digestive organs to the new food, is sure to cause an attack of *toxemia.*

The mother who suddenly increases the amount of an infant's food, at once causes a *toxemia.*

The mother who gives an infant all the milk it will drink on a hot day, instead of keeping the food at its regular amount or quenching the extra thirst with water only, is inviting an attack of *toxemia.*

The mother who allows a greedy child to gorge itself one day on whatever it prefers, and then eat very little the next day, is continually causing attacks of *toxemia.*

The mother who feeds a sick or feverish child milk, instead of water, is adding *toxemia* to its sickness.

The parent who is afraid the child will become weak in a sickness if not fed freely and regularly, is always causing *toxemia* by food that cannot be digested.

The mother who persists in putting a six ounce meal into the two ounce stomach of her infant is surely causing *toxemia.*

The mother who feeds her infant daily an amount equal to forty pints daily for herself, as shown by the respective weights of mother and child, is surely causing a *continued toxemia.*

These are a few of the conditions which daily cause or perpetuate this poisoned toxemic condition of the blood, in infancy and childhood.

Mothers will ask how they can know that they are causing this toxemia; what symptoms it causes; if it is serious, and if serious, what saves the children's lives.

The toxemic condition is known best by the stools changing from the yellow, inodorous, well-digested character; by the vomiting, diarrhea or constipation, fever, sleeplessness, drowsiness, convulsions, loss of weight, or failure to gain in weight; and also by the bad color of the skin and softness of the flesh.

Toxemia is tolerated in many by the power of the kidneys to eliminate the toxic material when it is not thrown into the blood too rapidly. When the blood is overcharged with toxic or poisonous products, the child suffers from some form of disease, such as fever, gastritis, cholera infantum, meningitis, convulsions, gastroenteritis, or inflammation of the kidneys.

The only treatment successful, after the dangerous symptoms of disease have been removed, is to feed such food and such amounts of it as are perfectly digested. This is always known in milk-fed infants by the yellow, well-digested, inodorous stools, there being one to three daily.

In children fed on mixed foods, the stools should be well formed and well digested, with no strong, foul odors or green color.

The words *toxemia* and auto-intoxication are, in many patients, synonymous terms.

CHAPTER XVI.

SKIN DISEASES AND DEFORMITIES.

Eczema.

This is the most common and also the most obstinate form of skin disease to which children are liable. There is no exemption in age from birth upward. Some of the worst cases with which we meet are in infants from one to six months old.

Many children are born with the eczematous nature showing all over the body, and all the brothers and sisters have it in some degree. In these cases it has a blood foundation, and all the efforts of the physician are directed toward everting this tendency when once it demonstrates its presence. This type usually runs through the first year at least.

In these cases the infants are usually born with a tender skin, and red angry spots on the chin, cheeks or forehead follow washing each morning, and are aggravated by each washing or rubbing during the day. Soon these cases will also show the same red, raw skin about the buttocks, and all parts where the urine touches unless the greatest care is exercised in removing napkins as soon as they are wet. So great is this tendency in the skin to become eczematous, that only a total exclusion of water for weeks or months will keep the skin healthy and

natural. From this extreme condition of eczematous tendency, down to that condition where only a slight chafing or roughness occurs on the skin of the hands in cold, wet weather, during the fall or winter, we have all degrees and forms of eczema, and also all sizes of the eruption.

Some infants will have the eruption on the face and head, others will be covered with it on all parts of the body, and yet others will show it only in small spots, mostly on exposed surfaces, such as the hands, neck, or face.

The eruption appears in all grades of severity, from a slight redness of the skin, or a small pimply or watery eruption, to a raw inflamed wet surface, looking almost like an ulcer, covered with crusts, cracks, and scales.

The most marked characteristics of eczema are obstinacy in healing, tendency to return, and in many cases, moisture or weeping from the surface diseased, when the attack is well developed. Accompanying these eruptions is an intolerable itching or prickling of the skin, which will cause even infants a week old to scratch and tear themselves till they bleed. This often drives them frantic at night, and prevents sleep. To prevent the desire to scratch requires the constant attention of a nurse, and often also it requires the hands to be muffled and fastened down to the sides while sleeping. This fastening is best done by a piece of cotton, two or three inches wide, passed under the back and then fastened to each wrist, giving room enough to move a little, but not sufficient to reach the neck or face. Infants sleep well with this fastening, as it prevents them scratching, and thus starting up the intolerable itching, which is always worse at night.

In many infants, eczema is due to improper food. It

will often be aggravated by the amount or quality of the food taken, necessitating the strictest dietetic rules in order to obtain a cure. General debility, imperfect hygiene, teething, or any local irritation may cause an eruption of vesicles.

The tendency to eczema is much lessened at the end of the first year, the child apparently growing out of it.

In treatment, the family physician should always be put in charge. In young infants all cleaning and washing must be done with olive oil, or disinfecting starch water. No soap or water are allowable. The diet should be lessened, and the bowels kept slightly relaxed; always aiming at such food as will give yellow, well digested, soft stools The irritated surfaces must be kept dry and excluded from the air by light, cool dressings, neatly fitted and stitched on so as not to increase the heat of the part, as heat always increases the itching. Under these dressings an ointment (Remedies No. 80 and 81) must be kept constantly applied, and covered with paraffine paper. Where the surface is moist and keeps wetting the dressings, a powder (Remedy No. 109) should be dusted on frequently until this moisture is stopped, then the ointment can be applied as above. Where crusts form on the skin, a liberal dressing with sweet oil will soon soften and remove them. Mothers must remember that eczema will always continue if not completely excluded from air and moisture.

The child suffering once from eczema is always liable to a return of the disease in the fall, when it is too much bathed, when improperly fed, or exposed to cold winds. When there is the slightest tendency to a return, all washing should be stopped immediately, and cleansing

effected with sweet oil and very little rubbing. The oil must be applied very frequently to keep the skin soft.

In general eczema, where all parts of the skin are badly diseased, recourse must be had to the mask to give protection from the intense itching and scratching.

Here the skin is well disinfected with Remedy No. 94, the ointment, Remedy No. 80, applied freely, and covered with pieces of gauze, leaving openings for eyes, nose, and mouth. This process is applied to all diseased surfaces, and with thin cool bandages kept applied for days without removal. When removed, all unhealed parts are again covered, till a cure is obtained. Such cases require the constant attention of a nurse.

Chilblains.

Chilblains may be called embryonic frostbites. They bother some people a great deal, especially those with habitually cold hands and feet. It appears that the blood circulation in the extremities of these people is not vigorous enough to secure a safe temperature at all times. They are usually dyspeptics who cannot consume enough food to keep themselves vigorous, or people who wear thin or tight shoes in cold weather.

Chilblains appear commonly on the feet and hands after those parts have been severely chilled. They look like red, swollen spots, shiny and tender, particularly when brought near the heat. In aggravated cases, blisters and sores may follow, and these are very difficult to heal. Any exposed part may develop chilblains after a severe exposure to cold. On the feet they become very tender and irritating, and cause enough swelling to make wearing the regular shoes very difficult. Those who suffer in this way should avoid warming the hands and feet at a

fire, should wear loose, thick, warm shoes, and should have attention to secure a better digestive condition and better health generally. Locally, the sore spots should be painted with Remedy No. 92 twice daily, or tincture of iron once each week. Bathing the tender part in real hot water will greatly relieve the itching and the burning.

Frostbite.

Frostbites of the milder form, where the frozen part is not entirely destroyed, are quite common. In these cases the parts frozen first turn white and shrink in size. After being thawed out they swell greatly, and become red and very tender. A frozen part should be thawed out very slowly with cold water or snow, and then should not be brought near the heat for some days. Early heat is likely to cause great soreness, weeping and blistering of the skin. In severe frostbites, sores follow from sloughing of the skin. As the frozen tissue has lost part of its vitality, great care must be exercised against subsequent exposure. An equable temperature is the best aid in the cure. Locally, zinc ointment (Remedy No. 80) makes a suitable dressing. The frozen parts remain weak and tender for months.

Warts.

These are caused by an unusual growth of the outer layer of the skin. They are very common in some children, and supposed to be caught from other children having them. This is, of course, an absurdity. The exact cause of them is not known. Usually they disappear as the child grows older.

Many try to remove them by caustic applications, and by burning them. These methods are painful and unsuc-

cessful. The writer has found them easily removed by loosening the skin from around them with the point of a sharp penknife. This is done without any pain by cutting down all around them little by little till blood appears in the crack or cut made. Then with the thumb nail any wart, large or small, can be easily peeled off. The writer has followed this method for over thirty years, and always with success and very little pain. If peeled off cleanly they will not grow again. A little powdered nitrate of lead or burned alum applied to the raw surface after peeling will effectually check any tendency to grow again, even when not perfectly peeled off.

Red Gum: Strophulus.

This is a term applied by old nurses to a red, pimply, coarse eruption appearing on young babies. It is usually caused by keeping the infant too warm, too wet, or both. It generally appears first under the diapers, and in severe cases becomes eczematous, covering the whole body.

The treatment consists in keeping the infant dry *all the time*, and not so warm as formerly. Where very sore, the diapers should be left open and the infant cleaned or washed with a little sweet oil. No soap or water should be allowed to touch the sore parts. An ointment (Remedy No. 81), should be applied continuously till all rash disappears and the skin becomes strong again.

Washing always makes these cases worse, and no treatment will remove the eruption where washing with soap and water is continued.

A dry or oily skin, with cooler clothing, will quickly remove the eruption.

Prickly Heat: Milliaria.

This is a fine, red rash appearing over any or all parts of the surface. It appears in adults as well as in the youngest infants, and shows generally in very hot weather. It is due to too much heat and perspiration, and shows mostly about the neck and upper part of the breast, but often covers the whole body. It is accompanied by a light itching, or tingling, of the parts. When the rash is closely examined, many little fine vesicles of perspiration will be found under the cuticle. They cannot escape to the surface, and thus form minute blisters. These dry, and the skin peels off in a few days.

Cooler clothing is always needed in these cases. The surface may be powdered freely, and a dose of citrate of magnesia given internally. With cooler weather or less clothes this eruption will disappear in a week or less.

Prickly heat resembles scarlet fever in appearance; but the absence of fever and sore throat will enable any one to distinguish between them.

Careful examination will show this rash thickest under the perspiring part of the clothing.

Stomach Rash; Tooth Rash.

Many different forms of rash appear on the skin of young infants, which cannot be classified under any distinct name. Each child seems to exhibit a type of eruption peculiar to itself during the first two years of life. While these eruptions appear under like conditions, there is perhaps a similarity among them in color only. One is large and coarse, being in size equal to a split pea, slightly elevated above the skin, scattered loosely over the surface and red in color. The other is very fine and thickly placed, red in color also, and gives the skin a

rough appearance. Between these two are all sized erythematous patches, or blotches, and all sized eruptions of a red color. Parents call these different appearing eruptions *stomach rash* or *tooth rash*, according as they think them due to a deranged stomach or cutting teeth. Usually some laxative clearing out the bowels (Remedy No. 38) will relieve the digestive organs and make a cure. They all pass away in a few days with lighter food and cooler surroundings.

Birth Marks; Mother's Marks; Moles.

These are red or bluish marks, showing commonly on the face, scalp, or neck of newly-born infants. They may be any size, from a pea upward, and usually grow rapidly during the first two years. These marks are technically called *nevi*, and may remain level with the skin or rise above it. Each mark is a mass of fine blood-vessels, and if wounded bleeds very freely. It should always be removed by the surgeon while the infant is small. Some of these cannot ever be removed.

Moles are dark spots of pigment deposited in the skin or on the surface. They may be merely a stained spot without deformity, or they may be enlargements or growths, with few or many hairs growing from them, causing a very ugly appearance when appearing on the face or neck. They can be removed by a skillful physician, but there should be no tampering with them otherwise

Fever Blisters; Cold Sores.

These appear mostly on the face, about the mouth or nose; most commonly in colds and fevers, and when large are quite painful. They first appear as a crop of small blisters, set closely together and rising above the

skin. These blisters soon break and form one large, irregular-shaped sore, which requires a week or more to heal. When these sores appear on the lips they are very sensitive, and painful if touched.

Applications of ichthyol give relief. Zinc ointment may also be applied with benefit. They soon pass away with the convalescence of the patient. In fact, the appearance of these blisters is hailed by most people as an evidence of improvement.

Hives; Urticaria or Nettle-rash.

This is a common ailment in children, and among some adults also. It is characterized by the sudden swelling of ridges or clusters of red weals with whitish tops. They may appear anywhere on the surface, and last a few hours, to be followed by successive crops for two or three days. These weals are usually the size of the finger-nail, or larger; are very itchy, and when numerous cause continual scratching. They often prevent sleep, and at times are accompanied by nausea and temporary loss of appetite. Some patients are troubled with them continually.

Hives are generally caused by unsuitable food. It is usually found that some particular diet causes them in one individual, and not in another. Shell fish, mushrooms, sour fruit, such as berries, and some kinds of sausage are common causes of hives. In some the cause cannot be found; but it is undoubtedly some poison irritating the nerve centers which causes this sudden eruption on the surface. It is only nerve irritation that can cause their sudden appearance.

The treatment usually adopted is some cathartic, to sweep out the irritating cause, and a light diet of suitably

cooked food for some days after. Locally, cool or hot applications, soda, and powdered borax may be applied. Some find relief in applying flour, but the virtue is often in the coolness of the application. Cool baths are soothing to the itchy part.

Children often produce a rash similar to hives by handling nettles. An intense itching sensation follows this also, and lasts for hours, with little relief except by cooling the itchy part.

Where hives recur frequently, a physician should be consulted, to ascertain the probable cause of irritation.

In those subject to hives the daily use of a small dose of laxative salts (Remedy No. 40) each morning to secure one to three free stools daily will be of advantage, and generally stop the return of the hives.

Chafing; Cracks; Roughness.

This means that the outer layer of the skin is disturbed and irritated from unnatural or unhealthy surroundings or applications. These are generally moisture, cold, and wind; and they produce chafing, cracks or roughness according to the location on the body and the age of the child.

On the hands, wrists, face, and legs there is exposure to cold and wind in children able to run and play. With these we will have roughness, redness, and even cracks in cold weather. All such parts should be covered to protect them from the wind, and vaseline applied at night, or a mixture of beeswax and lard (Remedy No. 81) makes an excellent dressing, acting like a varnish over the skin and not drying off for a long time. This application will heal the most obstinate cases of roughness and cracks, if constantly applied.

In the folds of the skin on fat babies where two surfaces come together, redness, chafing and ulcers form. This is due to the confined perspiration and continual decomposition always following such an unusual moist state. Mothers try to heal these cracks or folds by careful washing and powdering, but this will cure only the light attacks; the very sore ones require a mild cleaning with olive oil and soft muslin very often. Then they should be dressed freely with an antiseptic powder (Remedy No. 110), so as to secure enough air in the folds to insure a dry condition and avoid decomposition. In very deep folds of the neck and groin of fat babies, little strips of muslin or gauze should also be placed and changed when they become wet. Regular dressing in this way will rapidly cure these tender parts of the skin. Plenty of the powder should be applied several times daily, always wiping out the former dressing before applying the new one. Do not wash, but always clean them with the sweet oil before applying the powder.

Sunburn.

Sunburn occurs to those of delicate skin or to those who are confined to the shade most of their time. The effect of a strong sun is to cause an inflammation and redness like a slight scald. This is generally very sore and painful for a couple of days, and then the skin peels off. Any oily application will protect a tender skin from the air till the soreness passes away. A very good dressing is the beeswax ointment (Remedy No. 81).

Freckles.

These are common to some children in the summer time. They usually pass away when sunshiny weather

ceases. When there is any necessity for their removal, the mixture (Remedy No. 105) will be successful. If applied too freely, it may irritate the skin.

Freckles are due to extra pigment in the spots, and the lotion must penetrate deeply enough to destroy this extra color before its benefit is apparent.

Wet and Excoriated Surfaces.

Moisture from any source, either natural or diseased, when allowed to remain in contact with the skin for a long time, is sure to produce redness and excoriations. Nature designed the skin for a dry surface, and only in this condition can it be healthy and comfortable. The moisture from a cold in the head soon produces redness and soreness of the upper lip.

The continuous contact of wet napkins soon causes redness and tenderness of the skin over the groins and hips. The moisture from perspiration in folds of the skin on fat babies early results in excoriations.

Too much moisture from frequent washing in some children removes the smooth, oily secretions of the skin glands too perfectly, and a resulting irritation and tenderness follows. This is especially the case where much soap is used.

Eczema, one of the most obstinate of skin diseases, is soon established in any of those irritated surfaces where proper precautions are not taken to keep the part dry, and otherwise protect it from irritation. Other skin diseases may also soon be established on these sore parts.

The first requisite in treatment is removal of the moisture, and the second is dressing the surface with a bland, non-irritating, non-drying, tough, pliable and adhesive ointment that will shut out the moisture.

Remedy No. 81 does this effectually. Continuous dryness must be maintained, no matter how much trouble or ingenuity is needed to secure it, and it must be successfully perpetuated always after.

Sore Head; Milk Crust.

This affection, as commonly met with, is due to neglect in regularly removing the free secretion of the sebaceous glands on the scalp. The secretion is of a greasy, adherent nature, and over the fontanel, or opening in an infant's head, requires extra attention to keep it regularly softened and washed off. When allowed to remain, it soon decomposes and forms a firm crust, which irritates the skin underneath, and thus the commencement of the sore head is established.

All the treatment needed to prevent this is cleanliness at this point in well-fed, healthy children. Timidity in washing this spot is commonly the cause of the disease.

When a sore has been established here, the same treatment with some oxide of zinc or sulphur ointment, Remedies (No. 80 and No. 83) constantly applied will soon effect a cure.

There is a type of this sore head which commonly occurs in children who, though healthy, are improperly fed. Generally, in these cases, we find too much effort at cleanliness assists in perpetuating the irritation by causing eczema. Here the skin of the face and the rest of the body becomes irritated also. These are difficult cases to treat, and require the attention of the physician as soon as the above remedies do not give relief.

Diet in Sore Heads.

Many of these sore heads will require continuous attention for weeks or months to make a complete recovery. Generally, they are associated with a disturbed digestive condition, which if not corrected, prevents a perfect and lasting cure.

The condition of the mother's health always requires careful attention when she is nursing the child, as the irritation may be perpetuated by the character of her milk.

When the child is hand-fed, the strictest care must be observed that the character and amount of food are adjusted carefully to the child's perfect digestive capacity, as shown by the stools. If this feature is overlooked, the local treatment is generally a failure.

There is no danger to be apprehended from healing these sores. The old inherited idea of danger, from "driving the eruption in" and thus affecting the brain, has in fact no foundation whatever. These cases the writer has seen cured regularly, and in thirty-five years has never seen any injury result from curing a case of this kind.

Many of these cases must be treated without any washing for days or even weeks, sweet oil and ointments, applied with a mask, being the only dressings allowable. (See Eczema.)

If the treatment is done systematically, a cure can generally be obtained in one or two weeks; but there is very great liability to a return if errors in diet are committed.

Some cases will continue for months, alternately improving and relapsing. These children are born with this tendency. Their blood and digestive organs continue to show trouble, till the child finally grows out of it.

During all this time the child's sleep is disturbed by the most intolerable itching or stinging, which no medicines are able to allay. Even after the surface is cured, this itching often continues for weeks.

Deformities.

Deformities are only possible with weak, crooked, or broken bones. Weak bones are always present in the young infant. In some they are weaker than in others, and in many they continue weak; or, after growing strong, they again become weak through imperfect nutrition of the child and absorption of the lime in the bones. Parents must remember that continued or repeated pressure always in the same direction, will cause deformity by bending the soft bone of the very young child, or of the older, rickety one.

In this way we find different deformities produced in the head. An infant lying continually on the back, in this weak bone stage, will become flat headed posteriorly. This gives a wide appearance to the head when seen from the front, and a short appearance when seen from the side.

An infant always placed on one side while sleeping, will soon show the top of the head pushed to one side, giving it a crooked, one-sided appearance.

When we look at spinal curvatures, we realize again the effect of too much pressure in one direction. An infant with soft spinal bones, when left continually lying on the back, will have the natural graceful curves of the spine straightened out and the back assume a stiff, grotesque, uncomely appearance. Too much pressure on one hip, as when continually nursing on one breast, or seated

continually on one knee, will spring the spine to one side, as in Figure 55. This is particularly seen in young children with one short leg. They invariably have curvature of the spine from standing most on the long leg.

Bow-legs and knock-knees are another illustration of deformity from pressure on weak bones.

All these results should impress mothers with the necessity of variety in the care and handling of infants while

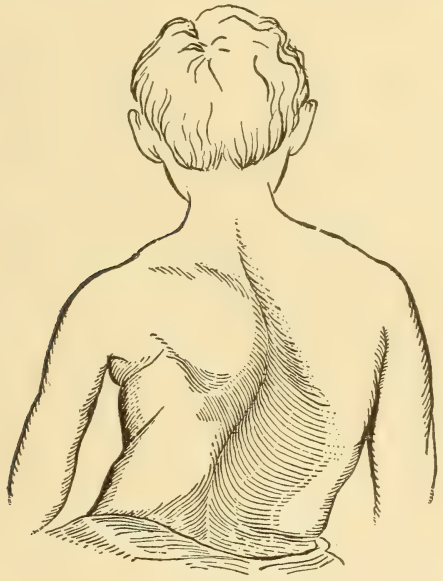

Figure 55. Curved Spine.

the bones are soft and pliable; also it should strongly impress the mother with the absolute necessity of always securing perfect nutrition in the infant to give rapid and firm growth of bone. This can only be guaranteed by yellow, inodorous, well-digested stools at all times. All other kinds of stool are evidences of danger, when long continued.

Where children show these bone deformities, a physician should be called at once and his treatment carefully followed out. It will probably require some months to correct this weakness, and secure a healthy, vigorous child.

Protruding Ears.

Some mothers are greatly worried by the size and prominence of the baby's ears. They hope that a little tape made cap device, which fits over and compresses them to the head, will overcome this prominence. Experience shows this to be a failure as a cure, but it probably prevents greater prominence by the ear being turned forward during the sleeping hours when moving the head. Only an operation reducing the depth of cartilage behind the ear will make a reliable cure. This may be done while the child is very small, and leaves no mark.

Deformed Hands and Feet.

Occasionally an infant is born with an extra finger or toe, which has no muscular attachments and should be at once removed.

Deformities such as club-foot are much more common and of greater gravity. These were largely permanent till the skill of American surgeons devised a thoroughly successful operation for their correction. Now it is inexcusable for a parent to allow this deformity to continue. It should be corrected early, before the muscles of the limb have become impaired from inactivity and want of use in the deformed shape. The worst club-foot can be made correct and like a natural foot by a skillful operator.

Ingrowing toe nail is inevitable in the formation of some feet. The edges are deep and press low in the

flesh, soon cutting the skin, even with the widest of shoes. In these cases the mother should regularly press a little cotton under these edges to raise them up, and also prevent injury to the skin. Care must be taken in trimming the nails to leave the corners projecting beyond, so they will not cut the flesh. The center of the nail may be scraped thin also, so the sides will spring up easily. Where this is not successful, the physician should be called in to remove these edges.

Tongue Tie.

Thirty years ago the writer was frequently asked to cut an infant for this tied condition of the tongue. He has been asked to do it once only in the last fifteen years. Why is this change in parental thought? I have never seen an infant demanding an incision under the tongue to relieve it of a tied or restricted condition. The little fold of membrane under the tongue is present always and requires no division to give the tongue room to protrude. Tongue tie never retards talking. A child who can nurse has enough length of tongue to talk with, and certainly sufficient for all other purposes.

CHAPTER XVII.

GENERAL DISEASES AND DERANGEMENTS.

Premature Birth.

An infant is often born before the full term of gestation is completed. This may occur four to ten weeks before the proper time, and yet the infant live. Of course, the nearer it is to the full term, the better is the chance of living. Such infants are very red and tender, due to the imperfect condition of the skin.

The main necessities in these cases are to preserve the heat and adjust the food to the imperfect digestive power. For the former necessity incubators are used when the infant is very young and weak, because in them a steady, artificial temperature is more easily obtained than outside. Where a child can take and digest nourishment properly, there is always a good prospect of its living. Where an infant continues to wail feebly when well heated, and cannot sleep, it will probably die. Such cases are usually too immature.

Children have lived and grown well when only three pounds in weight at birth, but these are rare cases.

Where an incubator is not at hand, the infant should be rolled in cotton batting and kept warm by surrounding it with bottles of hot water, in a warm place near a stove, so that it will also breathe warm air and prevent

cooling through the lungs. These infants should only be rubbed with olive oil, and never washed with soap and water. The rubbing may be frequent, twice or three times daily, being careful to avoid exposure to cold.

The diet must be very dilute cream and boiled water, sweetened and fed every hour, not giving more than two to three teaspoonfuls at each feeding. One part of cream to ten or twelve parts of water is generally strong enough food. This may be increased in strength as the infant grows older and its yellow stools show its ability to digest well what it has received. Where it is too weak to nurse, it should be fed from a spoon or dropper. When very weak, a rubber tube may be passed into the stomach and the child fed through it.

Meningitis; Cerebro-Spinal Meningitis; Spinal Meningitis.

It simplifies this subject to couple these three diseases, or names, together under one heading.

The brain and spinal cord are continuous with each other. They are covered by membranes, which are also continuous with each other. These covering membranes are technically called *meninges*, and an inflammation of the meninges is called meningitis.

Usually, inflammation of the membranes covering the brain alone is called meningitis.

Inflammation of the membranes covering the brain and spinal cord is termed cerebro-spinal meningitis.

Inflammation of the membranes covering the cord alone is termed spinal meningitis.

Meningitis is indicated by delirium, stupor, and coma.

Cerebro-spinal meningitis has, in addition to these symptoms, stiffening of the muscles generally, especially

those of the back, so that the child's head is drawn backward, and the body is hooped, or bowed upward. He then rests only on his head and heels. This shape cannot be changed, and is nearly always continuous in well-marked cases, with paroxysmal increases at times.

In spinal meningitis, all the latter symptoms from the muscles and the back are present, but the head remains clear and free from complications.

As these are all very serious and dangerous diseases, the physician should be called immediately.

Many of these cases where both head and spine are affected, die in a few hours. Some recover slowly after a very tedious and painful illness, but frequently are maimed at some point in the head or limbs. Hearing, speech, sight, or motion, may be partly lost.

Cases with spinal complications may appear in the epidemic form, and are usually very fatal.

Attacks of meningitis generally commence with fever and severe headache, with avoidance of light and noise, as these are painful. With these symptoms there is usually great nervousness or stupor.

Tubercular Meningitis.

In this form of meningitis we find the inflammation caused by tubercular infection, and following the usual slow but fatal course of this disease when it is very severe or involves vital organs in the adult.

Ordinary meningitis is rapid and clearly defined in its course. Its symptoms are very decided—high fever, severe pain in the head, intense nervousness, avoidance of light and sound, loss of appetite, and constipation. These symptoms are easily understood and are generally clearly read by all around the patient.

Unfortunately, in tubercular meningitis these clearly defined symptoms are absent in the beginning, and commonly the child has reached a dangerous condition before the physician is called in. Usually he complains little, has a slight headache, low fever, no heat in the head, is pale most of the time, has little appetite, vomits occasionally and desires to sleep. He is nervous or stupid, and lies on his side well curled up, with eyes away from the light.

He may present the same picture from many forms of mild sickness which have a slight fever, and are accompanied by little or no danger.

Tubercular meningitis does not often appear in infants under two years old. It is mostly seen in school children, but is not very frequent, when compared with most infantile diseases. It appears mostly in delicate children, who are poor eaters, and fond of books; usually in those inheriting poor constitutions.

Unfortunately, it is little amenable to treatment, the mortality being very high. Some physicians contend that it is always fatal.

With such a picture as the above, the best of medical treatment is certainly demanded very early.

Parents having thin, sallow children, with fastidious appetites, frequent headaches, and a fondness for books, should keep the possibility of tubercular invasion in mind, and make these little ones live in the open air as much as possible and in school as little as possible.

Paralysis; Poliomyelitis.

This is a condition appearing at any age in childhood, from the new-born baby to the youth of puberty. In the newly born it arises usually from some difficulty or slowness in labor, or an injury from the use of forceps.

The paralysis in these cases varies from a slight affection of one side of the face, or a portion of it, to a complete loss of power in the whole side. This is, of course, dependent on the severity of the injury. The general tendency of these cases is toward recovery; but where the injury is severe, the paralysis may be permanent in part of the area affected. This is very rare.

In children from one to three years old, we most commonly find paralysis following convulsions. These children usually suffer from some inflammation of the brain, and the attacks are most frequent in warm weather. Usually the paralysis affects one leg and arm or either of them. Most of these cases which recover from the first sickness, improve gradually from the paralysis also, but many remain more or less lame in either a hand or a foot.

There is a paralysis more or less severe commonly following diphtheria. This may show at any point on the body, and is dangerous to life when it affects vital organs, such as the heart. The tendency in any but these cases is always toward recovery. The attacks vary from the slight difficulty in swallowing or talking to a complete paralysis of all the limbs, and may last from two weeks to several months.

This type of paralysis does not follow one side of the body like the other forms, but affects both sides equally in most cases.

Where it affects the heart or respiratory organs, the patient is likely to die in a few days, becoming quite blue before death, from imperfect aeration of the blood. These cases die from suffocation.

In older children of the syphilitic or tubercular type we meet with diseases of the spinal bones, where they soften,

decay, and become misplaced, thus pressing on the spinal cord and causing generally an incurable paralysis of the limbs below the diseased point.

We also find attacks of poliomyelitis in a few children. This is a diseased condition of the spinal cord itself, causing paralysis of a few muscles in one leg. This is commonly caused by a shock or jar as in jumping, or by lying on the damp, cool ground while heated.

Occasionally, these cases make a perfect recovery, but many of them show a slight, permanent lameness due to the death of some small nerves in the leg, and consequent loss of power in the muscles they supply.

Cerebro-spinal, or spinal, meningitis occasionally occurs alone or as an epidemic in some localities. Frequently, with this, we find very marked paralysis, as well as deformity during the sickness. These patients are slow to recover, and some are permanently paralyzed. In these patients the infection affects the whole nervous organization, but in some the irritation is greatest in the spinal cord, causing great stiffness in the muscular system, particularly in the back, and also bowing of it till the child rests on the head and heels only.

Occasionally we meet cases of paralysis resulting from blows, falls and other injuries to the nerves or spinal cord. The recovery here depends on the severity of the original injury.

All forms of paralysis require the immediate attention of the physician, as the recovery is obtained by early, prompt attention, before the paralyzed muscles shrink and lose their tone and strength. This demands the early and continued use of electricity and massage with other treatment also.

Diseased Bones; Hip Joint Disease; Spinal Disease.

When bones become softened down in parts so as to lose their organization and form pus, we have the worst cause for deformity that can exist. These soft, diseased bones are mostly tubercular in character, and partake of the usual obstinacy of tubercle in any structure. It is always very doubtful how much repair is possible in these cases.

Deformities from diseased bone are seen most commonly in the spine and hip joint. It is this form of trouble which causes the hunchback of great deformity and the extreme cripple in walking.

Any bone may degenerate in this way and cause months or years of suffering. A small piece of dead bone the size of a bean will require months at least for its removal by Nature's slow plan. In some situations it will remain for years before it is cast off, and in some other situations it will wear the patient's life out in the effort to remove it. Diseased bones usually appear in weak constitutions that are poorly nourished. Generous nutrition persistently followed out with plenty of fresh air and sunshine, is the only protection these frail constitutions have against this degenerating tendency. An attack of rheumatism or a slight injury is always a serious matter in these subjects, as it frequently is the commencing change in future degeneration.

The treatment in diseased bones is largely surgical. This should be done as soon as the surgeon deems it right, and parents should call him in early, in order to save the strength of the child. The most nourishing diet and most invigorating medicines are needed to sustain the child's strength against the constant drain of a diseased bone.

Growing Pains.

Many children suffer from pains and aches of a very fleeting nature. These are mostly in the limbs and back. They are felt after playing, or after a night's rest, and pass away generally after a few hours, to return at some uncertain time.

These are called growing pains by the parents and populace generally, and no attention or treatment is considered necessary unless they cripple the child for a time. What is meant by calling them "growing pains" is uncertain; this expression is another inheritance.

These pains are rheumatic in character and parents should understand them as such. To the physician these pains are important, not on account of their severity, but as indicating a possible involvement of the heart in a rheumatic way.

Children suffer very little pain from heart disturbance. In most cases they do not recognize any irritation there, and consequently allow it to proceed till it has time to make irreparable changes in this most important organ.

As nearly all heart diseases commence in a rheumatism of that organ, it behooves parents to always pay close attention to all so-called "growing pains." They should have their physician examine the child's heart very carefully, and repeat the examination daily till all evidence of these pains has disappeared and the child is again as playful and strong as usual.

Where there is also any fever, short breath, palpitation, fluttering, or distress in the chest, this should be considered of great importance, and cause uneasiness and worry till all are removed.

Rheumatism.

This disease is the cause or beginning of nearly all heart affections. It is manifested in childhood mostly as "growing pains." Parents have in the past associated these pains nearly always with the growth of the child, and as such are natural, they say, and require no treatment. This is a serious mistake. So-called growing pains may be indicators of more serious trouble in or around the heart. While growing pains usually pass off and leave no traces afterward this cannot be said of the same irritation in the heart. Unfortunately, rheumatic disturbance of the heart causes no pain and little irritation while it is making serious changes in this most important organ of the body. Children pay no attention to it until it is almost too late for any beneficial treatment. Adults even will allow it to proceed to a dangerous state before seeking medical aid, on account of the absence of pain.

Rheumatism is a migratory disease traveling from point to point in the body, leaving one part and appearing in another. As there is no means of knowing where it will go next, physicians are always on the alert hunting for its new location. In this way they are continually examining the heart when there is a suspicion of rheumatism in the patient, and doing all possible to check its ravages. Where rheumatism once affects the heart seriously, it is likely to leave an impairment that is not amenable to treatment, and the heart will always remain as a damaged organ. As it is generally a repeating disease coming after severe exertion, exposure, and chilling, parents must realize how important it is to always commence prompt treatment in the beginning of each seizure.

The treatment should be promptly commenced by the

physician in order to check the progress of rheumatism. Fortunately, the bad results formerly traced to attacks of this malady are rare now. Early treatment is successful in the great majority of cases at the present day.

Fever and soreness of a limb or any joint, no matter how small, should always indicate a probable rheumatism. An attack of St. Vitus' dance is generally considered an evidence of the rheumatic taint, and demands prompt attention. These patients should always be clothed in flannel, to prevent the sudden cooling of the surface which occurs with cotton clothes. This sudden cooling induces rheumatism very often in this class of patients. During these attacks patients should not use much meat, as this embarrasses the already overloaded kidneys.

All drinks should be alkaline, such as soda, Apollinaris, lithia, and many other carbonated waters. They should be used freely under the directions of the physician.

Enlarged Glands.

These are very common in childhood, as they are likely to follow sore throats and the epidemic diseases of that age. Any disease causing sores in the mouth and throat is likely to be followed by enlargement of the glands of the neck. Even common colds will cause it in children who have previously suffered that way. Diphtheria, tonsilitis, scarlet fever, measles, sore mouth, and thrush are common causes. The tendency in the glands is to swell, and if not promptly treated, then form pus which should be opened early to avoid scars on the neck. These should receive steady and prompt treatment to secure an early healing.

Burns and blisters on the hand or arm may cause swelling of the glands under the arm; and all injuries on the

foot or legs may enlarge the glands in the groin through infecting them.

Where the glands form pus slowly, one after another, and refuse to heal with careful treatment, we always suspect them of being tubercular. All will heal with the proper treatment, though some will take months to do so. A physician should always treat them. Remedy No. 59 may be used in mild cases till the physician prescribes.

Where these glands enlarge frequently, parents must remember that there is some cause producing these frequent returns. Generally it occurs in pale and delicate children, or those having enlarged tonsils or bad catarrhal discharges. Whatever the cause, it should receive immediate attention and persistent treatment till all enlargement disappears. A child in good, robust, vigorous health, with no weakened spots, seldom shows any glandular enlargements. The treatment should continue till the child shows the ruddy color and hard flesh of good health. In this condition the blood is comparatively immune to glandular invasion, except in the tubercular, and in these this condition of color and flesh is the greatest protection available.

Iron (Remedy No. 60) and cod liver oil are two of the most powerful agents, with fresh air and sunshine, in securing this result. These remedies should be alternated. Cod liver oil should be given to these pale, thin children *internally*, *externally*, and *eternally*.

Scrofula.

This term was applied most frequently to patients having sores and swellings about the neck, and also to any continuously sore part of the skin. It is a term not used among physicians at present. The terms scrofula and

tubercle are synonymous, and the latter name is most expressive, consequently now most used. It is wrong to designate enlarged glands or open sores as scrofulous, as many of them have no tendency that way, being due to other causes entirely. Any form of sore in the throat, or even the mouth, may be a cause of enlarging the glands of the neck. A blister, burn, or pimple may receive a poisonous infection and transmit it to the glands in any part of the body, thus enlarging them.

In this way the glands under the arms and in the groin become enlarged very frequently. So frequent is this the case, that physicians very generally advise parents to expect enlargement of the glands in the course of sores or abrasions of the skin, when these sores have not been thoroughly disinfected at first and kept that way till perfectly healed.

Were it not for the perfect covering of the body with a healthy skin, through which no infection can pass, these glands would be continually enlarging in their protective warfare against the entrance of the poisonous infections which continually surround us.

Fevers.

Perhaps all other causes combined will not demand the attention of mothers so much or frequently among children as will the feverish conditions accompanying the disturbances and diseases peculiar to their age. While all the epidemic and contagious diseases are febrile and common to childhood, we also find many feverish eruptions following the gastronomic and athletic excesses peculiar to this irresponsible and thoughtless age.

In no department of nursing is thought and immediate action so imperatively demanded, to check the painful

symptoms and frequent bad results which quickly follow these disturbances in many families. Here the life of the child or its future usefulness is frequently jeopardized, and the prompt action taken to reduce the febrile strain indicates the value of nursing skill, which should always be exercised at once, and before the physician arrives. While most diseases demonstrate to the eye the cause of the fever, there are many febrile affections whose cause is very obscure indeed. In many cases the cause is often obscure even to the experienced physician. Very commonly it can be traced to digestive derangements, but frequently, as in measles and scarlatina, the fever precedes the other evidences of the disease several days; consequently the correct cause cannot always be assigned in the beginning of the attack.

Inflammatory diseases are always accompanied by febrile disturbance. The danger in these cases is generally in direct proportion to the amount of the inflamed part, the intensity of the inflammation, or the importance of the tissue inflamed.

Cooling baths can always be applied with perfect safety to feverish children. This applies to the fevers preceding eruptive diseases, such as measles and scarlet fever, as well as to all other febrile conditions. These baths should commence at the temperature comfortable to the child, 95°, and be cooled by adding cold water while the child is in the bath. They may be continued for five or even ten minutes, and repeated every few hours if necessary to procure rest and quietness. While in the bath, the child must be rubbed vigorously by two people and cold cloths applied to the head. A dose of castor oil, magnesia, or rhubarb should also be given to empty the bowels and remove all irritants or undigested food at once,

as these may perpetuate the fever. Cool drinks and a very reduced diet must follow till the fever subsides, or other treatment is found necessary.

After the bowels are freely moved a fever mixture, Remedy No. 45, should be given while awake, to assist in reducing the high temperature.

If there is much cough with the fever, this would indicate some bronchial trouble, or possibly the commencement of pneumonia. For these cases Remedy No. 50 is most appropriate, but a physician should prescribe where fever continues after the child has had a good sleep.

In some families the nervous system is so sensitive and easily disturbed that the children have severe headache, trembling, or convulsions every time they have a fever. It makes no difference what is the exciting cause of it, the result is always the same. The parents of these children should always keep a little medicine ready, to give at the earliest notice of sickness, and thus prevent the convulsions. For this purpose Remedy No. 54 answers a good purpose always and will keep perfectly for years. In fact this mixture will never spoil.

Inanition Fever.

This is a peculiar febrile disturbance seen in new-born infants and also in young children during the first two years.

The cause is always absence of good nourishment. It shows in some infants during the two or three days previous to the coming of the mother's milk, when the infant is not properly nourished by artificial means. It shows also in older infants who do not appropriate their nourishment, or who, through some sickness, refuse to take food.

Also, it appears in infants who are insufficiently fed, on account of the mother's milk being deficient in amount, or poor in quality.

In hand-fed infants raised on unnatural food, which contains deficient nutriment of the kind the infant can digest, it shows also.

Also, it appears in infants prematurely born, or those with undeveloped digestive organs.

Very commonly it occurs where food is changed suddenly, as in weaning or acute sicknesses. Here indigestion usually accompanies the fever.

The general cause tending to produce inanition fever, is a deficiency of the right nutriment properly digested and appropriated for the sustenance of the infant. This applies to any complication of health or sickness causing very reduced correct feeding.

The treatment will be inferred from the cause. Enough of the correct food usually subdues the fever in a few hours. Where it has not continued long enough to cause complications, such as indigestion, little, if any medication is required. All medicinal treatment should aim at relieving the stomach and bowels of their unsuitable contents and healing the irritation they produce.

Malaria.

This is an ever present infection in almost all parts of the world. It is due to a microscopic germ which is found in the blood, and is much more prevalent in some localities than in others. While many vigorous persons pass through life without ever feeling any effects of malaria, there are few persons reduced in health from any

cause, or reduced in flesh, who do not require treatment for malaria before being thoroughly convalescent.

It produces all degrees of disturbance, from the tired, lazy feeling, to the most pronounced chill and subsequent high fever. The evidences of malarial poisoning are so numerous and varied, that it requires the greatest skill to recognize them in many cases. Where a patient is in doubt a physician should be asked to prescribe. People are so well versed in taking quinine for malaria that there is little necessity for a prescription here. Where it is desirable to avoid the bitter taste of quinine, an ointment (Remedy No. 84) should be used. This should be well rubbed into the soft skin of the body and limbs twice daily for one or two weeks. It will commonly give relief to simple malarial infection, and also act as a most valuable tonic.

Malaria attacks infants as well as adults, it is no respecter of age; and where an infant shows an inability to recover fully from any sickness, or becomes thin, bad colored, and petulant, with a poor appetite, malarial treatment should be applied. When this fails to cause improvement in spirits and appetite there is some other disturbing cause present to explain the sickness.

Often malarial treatment will require to be continued for a month before giving reliable results. Usually not enough medicine is used in these cases. When given internally, about one grain per day, in divided doses, must be given for every twelve pounds in weight of the patient. This treatment should be omitted every fourth day, but repeated on this plan till the child's appetite returns, the weight increases, and the usual healthy color is re-established.

Malnutrition.

As the name implies, this word means an imperfectly nourished but otherwise healthy child, one that will recover under careful diet.

Malnutrition improperly handled will always drift into marasmus. These cases usually show in warm weather, and appear mostly in children born during that year. In other words, infants over eight or nine months old do not suffer so much from malnutrition. Generally they are strong enough before the warm weather arrives to digest their food properly, and thus escape the stomach and bowel disturbances which usually lead to malnutrition.

As perfect nutrition always accompanies healthy and natural stools, parents can generally guard against malnutrition by changing the quantity or quality of the food, if needed, till such healthy stools are produced.

As healthy stools mean perfect nutrition, so do unhealthy stools mean approaching malnutrition and marasmus. Where the mother cannot adjust the food so as to produce healthy stools she should at once seek medical advice.

The mother who persists for months in nursing a colicky cross infant is making a serious mistake. Many of the most obstinate and serious cases of malnutrition, and even of marasmus, are caused in this way. This mother is a poor nurser naturally, is mentally worried, is sick physically, eats the wrong food or eats too much food, works too hard, nurses too often, nurses irregularly, loses her sleep, does not exercise enough, dissipates, or exposes herself to extremes of temperature. These are a few of the ways in which a mother can commit errors and have the results reflected in the poor development of the

infant. The error should be sought for carefully and corrected promptly; but the infant should always be weaned before it is damaged and stunted in its growth.

A diet that gives yellow, inodorous, well digested stools is a sure protection against malnutrition, if the infant receives enough of it.

Marasmus.

What is marasmus? Only a result. Not a disease but a condition resulting in young infants during the first summer, from diarrhea, indigestion, tuberculosis, syphilis, chronic vomiting, or food unsuitable either in quantity or quality.

This occurs mostly in hand-fed infants, but may appear also in any infant compelled to live on an unsuitable or unhealthy mother's milk. We see it most commonly in infantile homes or hospitals where many children are raised, or rather are attempted to be raised, by hand, in fact, where there are not enough nursing mothers with a good quality of milk to supply all the infants. In these places, also, we find too often the infants of the syphilitic, tubercular, and alcoholic parents. These are always difficult ones to raise, even under good circumstances.

Again, we meet these marasmic infants in private homes where they are born in the spring or summer and improperly fed. These infants all die of starvation, even in the midst of plenty. Generally they swallow two or three times more food than they require, but cannot appropriate enough to keep them alive.

In this starving way, they become thinner and poorer daily, whining and moaning in their nursery, until they

are veritable skeletons, with only the skin hanging loosely on their shrunken bony frames.

These children all die if not rescued early by a suitable diet. Generally only human milk will save them, but even this will fail if not supplied early enough.

Marasmus is the extreme condition resulting from imperfect nutrition. The physician should always be called early where an infant shows continuous loss of weight, as this heralds approaching marasmus.

Erysipelas.

This is an inflammation of the skin and tissues underneath. It is contagious in character and may be carried to another by contact of a sore with the poison. It is most usually found about the head and ears in infants, due to poisonous infection in some way, but it may appear about any small sore when infected with this poison. It is very dangerous in children, and the danger is in proportion to the size of the inflamed area and the youth of the child.

Erysipelas is known by the shiny, bright red, swollen character of the skin occupied. It may last from one to two weeks. Where it spreads, as on the face, it requires the longer time to develop and then heal.

The treatment should always be referred to a physician. Infants two or three weeks old suffering from erysipelas generally die. They should be separated from the mother and any one having sores, no matter how small, as the smallest pimple may and will receive the infection, and develop the most severe forms of the disease.

Dropsy.

This means an accumulation of water under the skin in any part of the body, or in any one of the cavities. Dropsy means that the kidneys cannot remove the water as rapidly as it accumulates. This may be due to disease of the heart or liver, backing up the blood in the vessels and forcing the watery parts out, to give room for the thicker parts. It may also be due to the kidneys being inflamed and unable to do their regular labor in removing so much urine every day. The result in either case is an accumulation of water in the body where it does not belong. Feeding beef tea freely to children convalescing from febrile stomach and bowel disturbances will often cause dropsy.

In these cases the bowels should be kept open freely with some laxative, such as Remedy No. 40, and a physician also called in. Warm baths daily are beneficial till regular treatment is established. A dilute cream diet is the most suitable always and the only one allowable in disturbed kidneys.

Dropsy shows always in the lowest parts and may be recognised by its whiteness, freedom from soreness, and denting from pressure. After a good sleep it is usually most noticeable under the eyes, but in the evening is best seen in the feet and ankles.

Dropsy very commonly follows scarlet fever from slight exposure to cold. In these cases it is due to the extraordinary labor thrown on the kidneys by the defective skin. Such children should have only a dilute cream diet. No meat broths are allowable of any kind, as they always irritate weak or tender kidneys.

Retention of Urine.

It is common for an infant not to pass urine for many hours, a day, or even two days after birth, without causing any harm or showing any thing wrong. Usually a laxative or warm bath will start the urine running in these cases. Sometimes pain in urinating will cause the infant to avoid it as long as possible. In colic or diarrhea, occasionally, the same result will follow. In the beginning of fever and in the convalescence from scarlet fever, there are times when little urine is passed, and this is smoky in character. Frequent hot bathing with free rubbing while in the water, helps these cases. The bowels should be kept loose in feverish cases, as this assists materially in securing a regular flow of urine. Where this tendency to deficient urine is repeated or continued and a regular condition of the bowels exists, a few doses of Remedy No. 45 will aid materially in securing a larger flow. Any urinary difficulty after scarlet fever requires the prompt attention of a physician.

Painful Urination.

Frequently a healthy infant evinces acute pain in urinating, and is perfectly well afterwards. When this continues to be repeated at each urination, and nothing is found to explain it, a careful examination of the genitals should be made to discover a cause for it. In girls, at times, an acute redness or soreness is present, which causes smarting when the urine passes over it. In boys the foreskin will often be long and very narrow at the opening, thus retaining some of the urine for a time. This may decompose and set up an inflammation and soreness of the foreskin which causes smarting and pain at each urination.

Where there is no discoverable cause for the pain, the mother may feel the wet napkin for sandy deposits which often occur and cause pain in passing. These are usually reddish or yellowish in color, and are very irritating while passing. In these cases the food should be diluted and the infant allowed to drink freely of boiled water, slightly sweetened, if necessary, to induce drinking. A few drops of sweet nitre should also be given every two or three hours till better.

The sore spots seen in girls should be well dusted with Remedy No. 110 after each urinating, to heal the sore parts quickly.

The same powder may be used, if possible, with the long foreskin of boys, but usually these cases will require circumcision before a reliable cure is obtained. A physician should be called to examine such cases always, when a cure is not quickly obtained.

Bed Wetting.

While this is a habit in some children, in the majority it is due to slow development of the nerves controlling the neck of the bladder. In their weak or imperfect condition, the anesthesia of sleep robs the bladder of that nervous control which should be, and is, in the perfect body, always present, whether sleeping or waking. As children grow older this nervous control will gradually become strong enough and only in the few will the bed wetting habit remain. These cases must have assistance from their parents to avoid this unpleasant nightly result. The evening meal should be light, and little fluid should be taken for hours before retiring. They should be wakened to urinate frequently. Some apply a pillow, pad, spool, or any uncomfortable object fastened on the

back between the hips, so that the child must always lie on the side. In this position there is less danger than when lying on the back. Whipping and punishment can do good only to the few, the balance are too often beyond external agencies. In every orphans' home there are a number of children, both male and female, suffering from this weakness. The writer has worried with these, both in private practice and in an orphan asylum, for many years, but there are always a few children who are beyond relief. "They have to grow out of it," as it is commonly expressed. Some will not succeed even then and suffer in this way when adult grown. Two young ladies come to mind, who were victims. One who had always to sit up all night when away from home, and the other who was desperate when being married because of this continued weakness. Surely if this habit or weakness were preventable the above cases would not exist.

In stubborn cases careful examination by a physician should be made of these cases, to find if possible some local irritation in the genitals or in the bowels. In the latter seat worms will at times cause this weakness. Other worms also cause it. In such a few worm powders, Remedy No. 55, should be given, and the child well fed up afterwards on a drier diet, giving little water at evening meal and none afterwards. In boys with a long narrow or tender foreskin, circumcision should be performed. In girls careful examination of the urethra and vagina may show an unhealthy redness and some discharge. In such cases careful bathing twice daily with Remedy No. 94, and then leaving a small pad of absorbent cotton saturated with the medicine in the folds of the vulva will often relieve irritation there and give relief.

When nothing tangible is found to indicate the treatment suitable, Remedy No. 58 may be given each evening to break up the habit and teach the bladder to enlarge more and carry the urine longer. If necessary the medicine may be repeated every hour in the evening till it produces a redness of the skin, when smaller doses fail.

Often the children are benefited by spraying the spine with cold water at bed time for about two minutes. This may be done with a pitcher or hose as may be most convenient, and water from 40° to 50° F. used. Too much care and attention cannot be given these unfortunate little ones, to help them overcome this weakness.

Imperforate Bowel.

Occasionally an infant is born without an anus or with the bowel closed inside the anus. Such a child will be in misery and pain till the defect is discovered and an anus made, or the constriction in the bowel enlarged. These are very serious cases, difficult to handle, and only relieved by an operation. Many of them die from the pain and consequent strain. Treatment is often very unsatisfactory, due to the strong disposition the bowel shows to close entirely.

Prolapse of the Bowel.

This means that the bowel is projected out at stool from the severe straining of constipation, or from that straining always present in dysentery. In either case the bowel is pressed out till it projects beyond the anus. At first it returns again after the straining stops, but soon it becomes so stretched and loosened that it loses the power to return, and a portion remains out permanently.

The treatment needed here is to prevent the infant from the necessity of straining at stool by making the constipated infant have soft, easy stools. This must be accomplished by more fat, fruits, or meat in the food, and insisting on such food as will give one regular daily stool. In the infant suffering from dysentery, it is necessary that the dysentery be checked at once and the child dieted so as to secure one soft stool daily.

Locally, the bowel should be oiled and pressed gently back until entirely returned after each stool and the child prevented from again straining by pressing the buttocks together, or holding a soft cloth against the anus till all straining ceases. At stool the child must be made to arise promptly as soon as it is relieved, and not allowed to sit there straining, which soon becomes a habit and perpetuates the prolapse. In bad cases it is often necessary to have the child relieve the bowels while lying down. This position greatly reduces the desire to strain and thus force out the bowel.

No medicines applied to the bowel are of any benefit in this trouble, but on the contrary, irritate and damage the lining, thus increasing the desire to strain.

Correct dietary, such as causes one soft stool daily, and regular attention at the time of stool will always give a cure if adopted early enough.

In cases where there is frequent desire to stool and great straining afterward, thus causing frequent prolapse, and in cases where the bowel is tender and painful, the mother should roll a lump of ice the size of a walnut or less in a little iodoform gauze, and place it in the prolapsed bowel before returning it. The ice in these cases slowly dissolves, soothes and cools the bowel, thus reducing the swelling of it and removing the desire

for stool and straining. No harm can come from frequent repetition of the ice, but on the contrary, a cure will be established quickly in recent attacks, by such regular treatment.

Ulceration of the Navel.

This is indicated by a continued moist state requiring cloths folded under the bandage to avoid soiling. A careful examination or opening of the navel will show a red, raw, moist surface. This, if not properly treated, will grow and gradually rise out of the navel like a pea or bean. When this happens, the family physician should be called, as it requires removal with a scissors. This operation is not painful to the infant, and is rapidly followed by healing.

Where there is no swelling, the moisture and rawness can be readily checked by filling the navel twice daily with Remedy No. 108. This powder checks all odor and heals rapidly.

Bleeding from the Navel.

The navel cord in some infants is very fleshy and hard, so that the string tying it does not always compress the blood-vessels sufficiently. This allows a gentle oozing and soiling of the clothes. Where this shows, a strong cord should be drawn tightly around the navel above the first string and tied firmly, care being always observed to secure a perfect stopping of the flow of blood before again dressing the infant. This bleeding is always easily stopped.

Sometimes on the third or fourth day after birth, the navel cord bleeds at the point of separation from the body. Here pressure with the fingers should be main-

tained till the physician comes and dresses it. Care should be observed that the fingers are perfectly clean or some disinfecting powder, such as Remedy No. 109, be applied freely under the fingers, as this point is very susceptible to infection and very dangerous when infected. Very often erysipelas enters at this point in the young infant.

Inflammation of the Breasts.

This affection occurs commonly in babies a week or two old. It shows as a hard swelling with little color at first. Old nurses think these swellings are caused by the breasts containing milk, and forthwith proceed to squeeze out what does not exist—another piece of barbarism. Can it be wondered that pus forms there after this cruelty? The swelling should be reduced by mild rubbing with warm carbolized oil every day, being careful not to rub hard enough to hurt the infant. The nurse should give plenty of time to this work, as on the perfectness of the massage depends the cure. After the rubbing, absorbent cotton with carbolized oil should be freely applied, and all covered with a thick layer of this cotton to secure continual softness and heat. As soon as the breasts become swollen, red and soft, they should be opened to discharge the pus and give the little one relief.

Jaundice.

Every infant is expected to have a yellow skin and dark staining urine some time during the first ten days of its life. This is apparently not a diseased condition, and conforms to a natural physiological act, as all these cases recover their correct color in a few days. It does not sicken the infant in any way, as these children nurse and

sleep as well during that time as they do after it passes away. No treatment is needed more than plenty of good nourishing milk and heat to keep the infant comfortable. This is only a skin coloring, not a true jaundice, as in the latter the eyes are yellow first.

There is a genuine jaundice in older infants and children, in which there is decided yellowness of the eye and skin, with very dark brown urine which colors all clothes. In this form of jaundice there is some fever and loss of appetite, with heaviness, and indifference to surroundings. In these cases the bowels should be kept open two to four times daily with Remedy No. 40, and the diet should be an entirely milk one. These attacks usually follow overeating, and consequently only a limited diet is allowable. A physician should be called in. Such cases are not dangerous, and generally last about a week.

Scurvy; Scorbutus.

In infancy this is the disease of the wealthy; in adult life it is the disease of the mariners or far north explorers—those robbed of a fresh meat, vegetable, or fruit diet.

Just as the adult, when robbed of fresh meats and fruits, shows the sore gums, loose teeth, bleeding mucous membranes, tender limbs, and general weakness with fever, so does the little infant suffer also, when kept on an entirely cooked diet, such as sterilized or condensed milk, with patent foods of all kinds. The gums become spongy and sore, the mouth, nose, and ears bleed, the skin becomes dark, the joints tender, and the limbs so painful and swollen that even bathing is at times impossible. Dark patches like bruises show under the skin on different parts of the body.

For all this medicines are not of much value, and the case looks hopeless as each prescription fails to give the much needed rest, and the much needed better nutrition with natural stools. The foul, loose stools continue, with unabated thirst; and the continuous cry or whine seems to have no end. But change the food from the everlasting cooked variety, give the infant natural milk just as Nature presents it, beef juice, not beef tea; orange juice, or any other fresh sweet fruit juice, in fact, natural foods with all the natural principles retained, none being dissipated or changed by heat, and the infant veritably bounds into good health again, so rapid is the convalescence.

The infant in an almost hopeless condition this week, is the convalescent of next week, and the roaring, roystering boy of the following. The lesson that the wealthy mother with a perfect nurse must here learn, is to *always* give the infant natural food (raw milk) when hot weather does not demand sterilized, and as the child grows older, add some variety to the diet, as long as the stools show the child can digest it. This is Nature's law, and the only one that is a true guide in feeding infants.

Rickets.

Rickets! Who would have a rickety child? What mother wants a weak-boned baby? Just think of it! Crooked legs, bowlegs (Figure 56), knock-knees, humpbacked, big head, hammer-head, projecting forehead, late teeth, poor teeth, coarse joints, pendulous abdomen (Figure 57), pigeon breast, short limbs, drawfs, bad complexion—all these and many other unpleasant features belong, one or more of them, to the rickety child

of either sex. To the female child may also be added soft hip bones, causing deformity and consequent inability in after years to bring forth her infant child in the natural way, thus necessitating the surgeon's knife to save the life of both.

What a prospect! Could anything be more unpleasant for the little one? And all this because the mother

Figure 56. Rickety bowlegs.

innocently feeds the wrong diet to her infant; because the mother foolishly selects her infant's diet from the newspaper advertisements or the advice of friends; because the mother does not know what is a correct diet; because the mother does not realize that she must always feed her infant such food as will give, during the first

year, yellow, inodorous, mustard paste stools, and during the second year, stools of the same character, but darker in color.

When mothers realize this fully and act accordingly, rickets will become a matter of history only. This can only occur when mothers cease giving foods of which they do not know the composition themselves. In other words, rickets will continue to curse humanity as long as mothers fail to give the little innocent babe a plain diet, every item of which she thoroughly understands, the same as she understands the diet of all the older members of her household. Does she feed them every day on mixtures and slops of which she knows nothing? How long would they take it? Must the child be big enough to defend itself before it can escape this ruinous diet? It almost seems as if it would require to be in some households.

Let mothers look carefully to the infant's stools, and take alarm as soon as they become foul, bad colored, pasty, or of variable consistence. They should not be swayed by the opinion or advice of friends, who think these features of no importance, simply because their crooked-legged, big-headed, pigeon-breasted children lived in spite of such stools.

The wrong food in time saps the stiffening or lime properties from the bones, and the weight of the child bends them. In these crooked positions, many of them remain for life, as the shape of many citizens prove.

Mothers should also look carefully to the character of the urine. As soon as it becomes smoky, strong odored, irritating to the skin and staining the clothes, they should remember that this is due to the unsuitable food, and

should reduce the amount or change the food till natural, clear, straw colors are obtained.

This unnatural urine is steadily straining the kidneys,

Figure 57. A case of Rickets. The large abdomen and crooked legs are caused by a soft, sugary diet, such as condensed milk or too much fruits.

and will in time cause inflammation of them and Bright's disease if not corrected.

Where a child shows any sign of rickets, some iron

tonic, such as Remedy No. 60, should also be given regularly with the perfect diet, but a physician should be consulted at once.

Rickets is a disease from which children with good treatment generally recover in health, though deformed. It is amazing also how the limbs will straighten up and the bones become strong, when the deformity is not too great, if the child is properly fed and treated.

Rickets is common among the rich as well as the poor. The too rigid patent, lazy diet of the former is just as bad as the too meager and unwholesome diet of the latter.

Leucorrhea.

This discharge may occur with very small girls, and cause great annoyance and itching. The general understanding of it when present is that a low condition of health exists.

At times leucorrhea is due to injuries, as falling astride a fence or other object. Occasionally it comes from the presence of thread worms, which find their way into the passage and set up an irritation there. Occasionally children may place pencils, buttons, etc., there themselves. The presence of a continual discharge with soreness around the passage should make a mother suspicious of such, especially when the discharge does not subside with careful treatment.

Strengthening medicines, such as Remedy No. 60, should always be given with good nourishing diet and plenty of sunlight and fresh air. A disinfecting douche, Remedy No. 94, should be used twice daily, and a small compress of absorbent cotton soaked in the lotion

should be laid between the irritated parts after douching. Where these remedies do not succeed, a physician should be called.

Circumcision.

The attention of parents is being more turned to this subject every year. Perhaps the pendulum is swinging too far in that direction with some parents. The thoughtful physician is trying to find the happy medium, or a reason by which to guide his thoughts on this subject: therefore, he advises circumcision when he finds the child continually urinating in daytime and wetting the bed at night. When with this the boy is irritable and easily disturbed, crying without apparent reason and waking frequently at night, he still more strongly advises it.

Especially does he advise it when the foreskin looks red and tender, and refuses to be returned over the glans, or shows that there are adhesions there.

Such cases as this require circumcision and it should be done at once, as delay is continually hurting the child's temper, and establishing a nervous, irritable habit which effectually interferes with the boy's development.

Parents realize the great advantage this operation has been, when the child's sleep becomes quiet and continuous, and the waking hours are joyous and happy.

The necessity for this operation commonly presents itself during the first month of life or any time afterward.

As a sanitary measure in unduly long foreskins, many advocate the operation. Truly it is desirable to be free from the annoyance and constant attention and washing which some have to follow all their lives to keep themselves clean, not to speak of the dangers from infection

also. The male with a moderately short foreskin is in a continual condition of cleanness and comfort, and with moderate care is free from contagion also.

Sucking the Finger.

Many children learn this habit and continue it till three or four years old. Many nurses teach a cross baby to suck a rubber or sugar nipple to keep it quiet. This is a bad practice and should be avoided, as when once established it is followed incessantly, and the habit is with difficulty stopped.

Continual use of any substance in the mouth tends to stimulate gastric secretion unduly. It also, in many children, forces the soft bones of the jaws out of their correct shape, causing the front teeth to project outward till in some the lips will not cover them.

This habit largely accounts for the badly shaped mouth and projecting upper teeth which we commonly see in people on the streets. It can be corrected in many by fastening thumbless mittens over the hands, and making the sleeves of the night shirts closed at the ends and extra long. By this means it becomes impossible to get the thumb or finger into the mouth.

Some mothers try to stop it by coating the fingers with bitter substances, such as aloes, quassia, or quinine. This is always a failure, as the taste of the child is not acute like that of the adult.

Nervous Habits.

All kinds of peculiar tricks are developed by nervous children. Among these are sucking the fingers, biting the nails, pulling the ear, pulling the hair, pulling the mother's hair when nursing, and repeating many acts

done by other children, such as stuttering and stammering. What can be done to avoid or stop them is often asked of the physician. Certainly many of these habits are serious when learned by children old enough to go to school, for there is likelihood of their becoming permanent. This particularly applies to stuttering or stammering, which may, in the majority of cases, be controlled by the firm, watchful eye of the mother always checking the act, and insisting on a slow, perfect repetition of words till they become easy. This must invariably be done when the very first evidences of difficulty in speaking show themselves. When the habit is established it cannot be checked by voluntary effort, and any attention by others only embarrasses the child and increases the difficulty.

The nervous habits or tricks learned by babies, usually disappear in time, due either to the vigilance of the mother, or increasing age changing the child's habits and desires.

Of all these nervous habits, perhaps biting the finger-nails is the most unpleasant and obstinate. It is an unconscious act when well established, and may, or will be repeated during all waking hours, when the hands and mouth are not otherwise occupied. Some will do it even in their sleep. This habit is often perpetuated into adult life, and I have seen it even in old age accompany the thoughtful mood. There is no cure for this but fixing the fingers so they cannot enter the mouth, as the act soon becomes an unconscious one beyond the mental control of the child. Dipping the fingers in some bitter or capsicon mixture will remind the owner and help to break up the habit. So persistent do some children become in doing this, that they keep the nails eaten down till the finger ends are all sore.

Holding the Breath.

This is a habit with nervous children and those not well controlled by the parents. It generally accompanies a fit of crying or anger, and at first seems voluntary, but in time becomes habitual. Where it is very frequent and severe it indicates a rickety condition of the body, and may become severe enough to cause convulsions.

In these attacks the child usually cries loudly with temper, throws itself down, and the face becomes swollen and dark from holding the breath. Some children struggle violently, while others apparently become nearly unconscious. These latter conditions are due to spasm of the glottis or windpipe, which soon relaxes and allows the air to enter the lungs again. With returning breath the face clears up and the attack passes off.

These seizures never occur in some families, as the mother by vigorous slapping soon dispels all efforts in this direction, and the child quickly learns that holding the breath brings prompt punishment. In these attacks, a quick dash with cold water or slapping with a wet towel will soon dispel all evidences of it.

Holding the breath in delicate children may be unavoidable with some. It only comes occasionally, and where persistent, these pale children require a tonic and strengthening treatment to correct their tendency to become rickety. This rickety tendency so weakens the nervous system, that those suffering from it are liable to all forms of nervous troubles, even to convulsions when disturbed by mental excitement or sickness. Such cases should receive prompt medical advice.

Masturbation; Self-Abuse.

Parents cannot be too careful in watching young children, and the company they have, to prevent them from learning this habit, common to both sexes. While usually it is the older children who are addicted to this, yet I have seen it in nursing female infants, who have unconsciously learned it from sitting on the edge of a chair and rocking themselves there. Once learned, that position causes a repetition. Circumcision in the male, when closely done, checks or prevents this habit.

Sometimes worms in the bowel, a narrow foreskin, inflamed or irritated vagina, and other local irritations about the genitals will establish this habit by irritation. Careful examination should always be made for these causes. In older children appeal must be made to judgment, sense, and future success physically in order to check this baneful and ruinous habit.

Boils, Furuncles.

A boil is an inflammation of a spot in or under the skin, and the formation of pus as a result of this inflammation. It appears as a dark red swelling raised above the surface, and is very painful and tender. Usually boils are caused by the stoppage of some glands or follicles, and when the pus is discharged they are at once relieved. Boils poulticed in the old-fashioned way are usually followed by a crop of boils, smaller than the original one. This is due to infection of the skin under the poultice by the pus lying on it so much; or by the poultice souring there, and macerating the skin, making the glands susceptible to infection from the pus.

Several other swellings looking like boils commonly appear, and are called by many "blind boils" because

they do not point distinctly and discharge. They are flat and soft on the surface, slow in progress, and not as tender as boils. They should be open when of any size. Many hard, red swellings appear, looking like boils, remain a few days and then recede again. Many smaller pustular swellings appear, acting like small boils. They are not so deep in the skin, and consequently not so long in duration or so painful. They form pus early, discharge easily, and soon disappear. Seldom can these different kinds of boils be checked.

The causes are often difficult to ascertain. Some are due to bad surroundings; others to an impoverished condition of the blood, and yet others to no ascertainable cause except it be infection, as they appear in healthy children. Efforts are made to check them by applying chloroform, turpentine, ichthyol, and different forms of ointments. These are seldom successful. When very tender they may be dressed with an antiseptic lotion (Remedy No. 96) on absorbent cotton squares. These successfully take the place of the old-fashioned poultices, are much lighter and cleaner, and disinfect instead of infecting the skin. These dressings are not followed by a crop of fresh boils.

Weak, delicate children require a general tonic treatment to prevent a succession of boils. A physician should be called to outline and direct this medication.

Abscess.

This is a large accumulation of pus under the skin. It generally follows some injury, infection or bruise, is often very painful, and may reach a large size if not early evacuated. Commonly an infected gland will degenerate into pus and form an abscess. These should always have

the attention of a physician, and be evacuated early so as to avoid scars and deformities. When left too long before evacuating, the skin over an abscess becomes so thin it loses its vitality and ulcerates, leaving a nasty hole, hard to heal, and also a large scar. Antiseptic lotions (Remedy No. 96) and dressings must always be applied after opening an abscess to secure rapid healing. Strengthening treatment is commonly needed to hasten the healing process when the child is not in prime condition.

Earache; Running Ears.

Earache is very common in childhood. It frequently comes as an extension of a coryza from the nose to the middle ear. Of course, the ache is only an evidence of the inflammation in the ear. Suddenly the child cries violently and continues persistently to make loud lament. When very young it is restless, moving continually, and refusing to be comforted by the soothing embraces of the mother. In fact, it cannot be comforted save for a few moments at a time, to again renew its cries and uneasiness, without securing system in its movements.

The non-consolable infant should at once be suspected of earache, and tried with hot applications to the ear to find if they give relief. When the pain cannot be controlled by heat externally, small doses of laudanum or paregoric should be given internally, and repeated often enough to control the pain. Laudanum on cotton should be placed in the ear also. Earache usually terminates in a discharge, which generally stops after a week or two. When it does not, each morning a healing lotion may be poured in the ear, such as Remedy No. 91, and emptied out after fifteen minutes. This relieves the foul odor and gradually checks the discharge, which

should always be washed away with a soft rubber ear syringe (Figure 3) before the lotion is used.

Where this treatment does not relieve the pain, a physician should be notified. Some of these cases show a great obstinacy, the pain returning without any apparent reason, and the discharge continuing indefinitely. In such cases a diseased condition of the bones of the ear is often present. This is always very unfortunate, as this dead bone may demand an operation for its removal. If not removed, the discharge and pain are liable to return at intervals for years, and occasionally a diseased ear affects the brain and causes death.

Where an ear has once been diseased, the greatest care should always be exercised in protecting it from exposure. This is particularly needed in cold, damp weather. Such a child, when too young to run, should be taken out only in a covered baby carriage. This carriage should not expose the child's face to the wind, at any time. By avoiding windy, cold, damp weather, the danger of fresh irritation is very much lessened.

The throat and ears should always be warmly covered when out for an airing. Even in older children the ear requires careful protection after it has once shown a weakness or earache. Very commonly deafness follows these attacks.

Enlarged Tonsils and Adenoids.

This is a very common condition in childhood. Infants have variable sized tonsils, some large, some small. As long as their size does not interfere with breathing through the nose while sleeping, or cause snoring, there seems little reason for reducing them by an operation. They cannot be reduced in size by medicine, except in those recently enlarged by disease.

The type of enlargement which demands attention is that resulting from nasal catarrh, where the child is continually renewing its cold in the head. Here the discharge from the nose runs down into the throat, irritating and enlarging the lining of the posterior nose, thus causing adenoids; and also irritating and continually poisoning the tonsils, thus enlarging them. This diseased or catarrhal condition in the posterior nose often encroaches on the tubes leading to the middle ear and causes deafness.

Post-nasal catarrh, adenoids and enlarged tonsils demand immediate attention, as they effectually retard the intelligence, growth, health, and hearing of the child. While this condition of catarrh soon causes deafness, it also widens the nose, causes mouth breathing all the time, checks mental development, gives the child a stupid appearance, and effectually undermines its health and growth. Such children are pale and anemic, cannot compete with others of their age, mentally or physically, and have repeated sicknesses. They should have the immediate attention of a physician, and the adenoids and enlarged tonsils be removed. It is amazing to see the rapidity with which color comes to the cheek, brightness to the eye, strength to the limb, and weight to the body when this operation is done successfully and the blood is relieved of the continually poisoned and wasted condition caused by this catarrhal irritation of the nose and throat.

Medicinally, a great deal can be done for the mild cases, and even the severe ones, by spraying or douching the nose and throat every day once or twice with a weak salt-and-water mixture (see Remedy No. 95½).

This is not painful, and if industriously followed will greatly relieve the worst cases, and cure the mild ones.

Children soon learn to use the salt water without any suffering. Such children should be kept in good general health with good appetites to obtain a cure.

They should regularly receive cod-liver oil or syrup of the iodide of iron (Remedy No. 60) for four weeks every three months. Even this amount will require to be increased in the very pale and delicate, until such time as the nose and throat are permanently relieved of all enlargement and obstruction.

Rupture.

Many children are born with a weak spot in the lower part of the abdomen on either side of the pubic bone. With the strain of crying or stool, they can at these points force a portion of the intestine out through the walls and thus cause a rupture. This shows there as a soft, puffy swelling, only while crying or straining; at first always disappearing while the infant sleeps. It soon becomes larger and remains down longer, till finally in bad cases it will remain down all the time.

Such a child must wear a truss all the time to prevent the intestine from coming down and causing pain. It is very difficult, indeed, to adjust a bearable truss on an infant who wears diapers, as it chafes the skin when it is wet. Several trusses must be kept on hand, so that one is always ready to replace the soiled one. It is always very doubtful whether a cure can be obtained in this way in children so young, as one omission or mistake may let the rupture down after months of industry in holding it up. The child can never be allowed to rise without his truss, and can only have it removed after retiring for the night. An intelligent and careful mother must always

see to its proper application, and supply new trusses as the old ones become weak.

When the truss fails to make a cure, the only course open is an operation for its removal. Fortunately, this can be successfully done on children and this continual annoyance removed. There is very little danger in this treatment on young children, and generally good success follows it.

Navel rupture is also a very common condition in young infants. It is due to the opening in the abdominal wall not closing perfectly after the navel cord has separated. A compress should be worn under, or more

Figure 58. Pad for a weak navel or rupture.

properly, stitched under the abdominal bandage and kept constantly applied. This compress should be as large as the palm of the hand, and thick and round surfaced enough to hold the rupture entirely in the abdomen. The bandage should be of flannel, and always wide enough in these cases to carry three pins in fastening it on. Such a bandage and pad (Figure 58) when properly applied will not slip out of position.

The lower surface of the pad should be rounded like a section cut from the side of an apple, and the flat side sewed to the pad. This shape always exercises the proper pressure on the navel opening till it closes entirely.

Coryza; Cold in the Head.

Coryza, or cold in the head, is very common among infants. By this we do not mean the moist condition always present in some infants and commonly called *Snuffles*. Some are born with this.

Coryza is an acute irritation of the lining of the nose and often of the eyes also. It lasts a few days with frequent sneezing, and may be followed by a cough, due to the inflammation extending down into the throat and bronchial tubes.

Locally, the nose, face, and throat should be greased with sweet oil, lard, or camphorated oil twice daily, and a little pink powder (Remedy No. 48) be given internally three to six times daily. Where there is much fever and distress, fever mixture (Remedy No. 46) may be given also with the pink powder. These attacks usually pass off entirely in a week, but give great annoyance while nursing from the closed condition of the nose preventing breathing. Such children have to often stop nursing in order to breathe.

Night Terrors.

Very active children frequently are disturbed in their sleep, crying out, starting up suddenly, screaming with terror, talking, or getting out of bed. These acts usually follow a very active day, or an exciting evening accompanied by a generous diet; or an excess of food, fruit particularly. Such children are usually healthy and need little medicine, unless it be a dose of castor oil to relieve the overloaded digestive track. They know nothing next day of their night disturbance, all being done in their sleep.

Children subject to this disturbance should have less

excitement, particularly in the evening, and always take a light supper. They gradually grow out of this tendency. It is generally considered that the terror starts in lurid and exciting dreams, caused by the unhealthy products of indigestion circulating in the blood through the brain.

Sleeplessness.

This is very common in infants during the first dentition. It is more common in hand-fed than in nursed babies. A perfectly nursed baby is seldom disturbed in its sleep, hence we come to realize that a sleepless baby is one whose digestive organs are disturbed either by the quality or the quantity of its food.

An infant sleeping with its mother often learns to nurse frequently from mere contiguity to the breast. Here it is generally the quantity that causes the sleeplessness; but there are cases where it nurses often, because the supply of milk is failing and the infant is hungry. It cannot get enough to last a sufficient time in the stomach, and it then tries for more. Such an infant grasps and releases the nipple frequently, and bites it, or cries with vexation. No child is so wakeful as the hungry one, except the one with an earache, or the rickety one, whose bones are soft and sore from unsuitable dietary.

Hand-fed infants too often have night disturbance from both the quality and amount of the food. The digestive organs are laboring with their unsuitable load, and the nerve centers are irritated with the unhealthy products of digestion flowing in the blood current. The result is always disturbed sleep. The innocent parent thinks of the universal solace—food, and forthwith plies the bottle again. Small wonder is it that the child sleeps no better, till exhaustion and gormandizing stupidity become

pre-eminent, holding the infant unhealthily dormant for a few hours. At last it obtains a form of sleep which gives the stomach a much needed rest. This prepares the child for a renewal of this senseless stuffing, which characterizes its waking hours and prepares it again in the coming night for a return of the disturbances incident to its sleeping hours. A continuance of this round of dietetic errors finally establishes the wakeful habit like that in the morphine devotee, and even when all errors are corrected, and the child is thriving, both mentally and physically, we are astonished to find that the sleepless habit often continues for months longer.

What can be done for sleeplessness? Where the habit is new, a correction of the errors causing it will be promptly followed by improved sleep. Where the errors are old enough to establish the sleepless habit, there has been such a change in the nerve centers that only time, probably many months, correct dietary, open air exercise, change to the country, and improved general health will finally secure calm and undisturbed sleep. Sleeping medicines will not improve these cases, but on the contrary, damage them. Many of these wakeful children are happy and playful in the night, sleeping only half-hour snatches, and then requiring renewed entertainment, even during most of their sleeping hours. They repeat the same proceeding in the daytime, and I have had them, when but two years old, require all the endurance and attention of three nurses in regular relays to take care of and amuse their exacting selves, while they thrived and grew fat.

These children are always rickety. How they manage to thrive with this limited and erratic sleep is often a mystery to physicians.

They should always receive careful medical inspection to guarantee freedom from errors in development, and proper nutrition.

Headache.

The infant cannot tell you that it has a headache, and yet in its own language it says so very plainly. The hot baby, restless and wakeful, says by its corrugated brow, rolling head, avoidance of light, moaning, and general heavy appearance, that its head aches. Bathe the head gently and freely with cool water, and soon the little one, by its quietness and calm submission, tells you to continue bathing, as that relieves the aching there. Not long until sweet sleep rewards your efforts, then who will deny that the baby had a headache.

Many of these cases are not recognized, and the fever and pain pass on to brain trouble. As in the adult, so in the infant, many causes contribute to the production of headache. Among these are fever, cold, hot sun, indigestion, constipation, weakness, fatigue, eye strain, and diseases of heart or kidneys. According to the cause, so must be the treatment. A little thought, showing where the healthy daily routine has been violated, will generally suggest the first treatment. Always lessen the food, where there is any fever in these cases, until the child shows by its sleep and naturalness that it is relieved of pain.

The bowels should be moved by a cathartic in the beginning of the treatment. Remedy No. 40 is a suitable medicine, as it is not rejected by the stomach, has no taste, and disinfects the bowels. It should be continued till the bowels are freely moved.

Where a child does not show prompt improvement after the above treatment, a physician should at once be

consulted, as the great variety of sicknesses, which commence this way, often renders delay dangerous.

Croup.

This is the most dreaded of infantile diseases in many households, and not without good cause. It claims its victims from the infant recently weaned to the youth nearing maturity.

Generally, great confusion in the family and painful apprehension accompany the first evidences of croup in any child. This is properly so. Until the parents realize the amount of danger which croup carries for a particular child, the same anxiety remains present. Even until the physician has the proper estimate of the croupy nature of an infant, he feels considerable alarm. Croup shows itself in three forms.

Catarrhal Croup.

This is a disease common in some families, or rather some children in a family; rare in other families, and never seen in many families. Some children have croup as their form of taking cold; others have the same cold and show it by hoarseness and cough of the ordinary sound, such as is always present in a cold or bronchitis.

Croup is properly a bronchitis, or an inflammation of the upper end of the windpipe, or large tube carrying air into the lungs. The swelling or inflammation of the membrane lining this tube narrows the space, and coughing through this narrow space makes the dry, brassy sound called *croup*. As soon as any secretion from the swollen narrowed opening appears, the croupy sound in coughing becomes soft, gradually losing its characteristic harshness, and we realize at once that the infant is improving, for the cough now resembles that of an

ordinary cold. Such is the course of an ordinary catarrhal croup, and will probably be repeated every time this child takes a fresh cold. There is little or no danger in these attacks. They are easily treated by keeping the infant in a warm atmosphere and applying cold cloths to the front of the throat till feverish symptoms subside. Some syrup of ipecac, small doses of dover's powder, or Remedy No. 49 may be given internally to help allay the cough. These attacks usually subside on the third or fourth day.

Spasmodic Croup.

This is the form that gives the most decided shock to parents not accustomed to it. Usually the child goes to bed perfectly well, or has a slight cold, and wakes an hour or two later coughing and gasping for breath, due to a spasm in the windpipe. So great is the distress that the inexperienced think the child is suffocating and in great danger of dying. Before the doctor arrives the distress is relieved and the child convalescent. There is generally a bright fever present. Vomiting relaxes the spasm in the tube which causes the suffocation, and at the same time commonly unloads that irritating food from the stomach which is often the cause of the attack. This child is always running around comparatively well the next day. The vomiting has cured him. In these cases an emetic, such as Remedy No. 47, should be given at once. This with the cold cloths applied very freely to the throat gives prompt relief.

False Membrane Croup.

This is the form of croup which has given the public that great horror of this disease, and which always causes alarm when it seizes a child. Nor is their alarm without

just cause in this particular case. The inflammation here is of a specific kind, and causes the formation of a false membrane which lines the larynx and adheres closely to it. Coughing through this tube of false membrane gives the dry, brassy, croupy sound. The danger here is that the membrane will grow so thick as to close the air tube and thus suffocate the child; or that the membrane will extend down into the lungs and thus destroy the child's life.

So great is the similarity between this form of croup and diphtheria that most experienced physicians regard them as identical. Certain is it that they are alike dangerous to life, and demand the same treatment. Until the discovery of antitoxine, ninety per cent. of these cases died. Now, with the early and liberal use of this harmless remedy, we expect to save ninety per cent. of those afflicted with this highly dangerous disease.

False membrane croup may be known from the other forms by its commencing lightly and gradually growing worse. The cough becomes more croupy and frequent; and the difficulty and noise in breathing becomes correspondingly louder and more distressing.

False membrane croup must always be treated by the physician, and parents must remember that the earlier he is called, the better will be the prospect of recovery. Every day's delay in commencing treatment doubles the mortality following any treatment commenced on the previous day. Antitoxine, intubation, and tracheotomy are absolute necessities in the treatment of these cases, but are useless unless used early.

Bronchitis, Pneumonia, and Pleurisy.

Bronchitis is properly an inflammation of the lining of the air tubes or a part of them. Pneumonia is an

inflammation of the air cells; but as there is no line of demarcation which shows where the tubes cease and the cells commence, it is usual to find bronchitis and pneumonia present together. This is then called broncho-pneumonia.

It commences commonly with a chill followed by fever, short breathing, cough, headache, wakefulness, and loss of appetite with marked thirst.

The characteristic symptoms are cough and short breathing, with dilated nostrils. These symptoms are severe in proportion to the extent of the attack and the nature of the infection.

Generally, the disease lasts from seven to ten days, when uncomplicated, before the severity of the symptoms lessen and the child is convalescing.

Broncho-pneumonia is not so dangerous in children as in adults. Children generally recover and show no bad results. Many have the disease every year when one to four years old, and are perfectly healthy afterward.

Some call this disease capillary bronchitis, but treat it the same, and the course and convalescence are similar.

The disease is generally severe and requires prompt attention from both physician and mother. Great care should be given to the air the patient breathes. This should be fresh and changed regularly, but uniformly warmed up to 70 degrees Fahrenheit *night* and *day*.

In severe cases there is difficulty in aerating the blood from insufficiency of air. These children show a leady, bluish color, and are serious cases, with very rapid breathing.

They should be given plenty of room and not hampered by extra clothing, as they change position very frequently to get relief. They will require the hot bath

often to redden up the skin and relieve the pressure of blood on the lungs till the physician can give relief.

Cold drinks are desirable and beneficial always in small amounts.

Where the breathing is catchy and painful, preventing a long breath, it shows that the inflammation has extended through the lungs to the surface lining or covering if them and the ribs, and thus caused this painful cough and breathing. This condition is called a pleurisy, or a pleuro-pneumonia.

Such cases are very distressing and painful, requiring some anodyne to ease the suffering and secure sleep.

All diseases of the lungs involve such large and important structures that the physician should direct all treatment, both medicinal and dietetic.

Inflammation of the lungs, in children of tubercular parentage, is likely to stimulate the tubercular growth in their lungs. This is particularly evident where it is complicated with whooping cough, or where the child is near puberty.

Pneumonia or bronchitis in a child suffering with whooping cough makes a very dangerous complication. It usually lasts as long as the whooping cough does, and even so aggravates the latter as to make it a very long and tedious attack, if the child recovers. The soft flesh and yellowish-white color of these convalescents demand months of recuperation to recover their former vigorous appearance.

Styes.

These are small, inflamed swellings on the edge of the lids. They appear in children with defective sight, indicating a necessity for an oculist's examination and glasses to relieve the eye strain.

This strain of the eyes in school children results in soreness of the lids also, and can only be remedied by properly adjusted glasses and lessened eye labor.

Poor health will in some school children also cause irritation of the eyelashes and consequent styes. Such children require sunshine, outdoor exercise, no study, good food, and cod-liver oil, with an iron tonic, such as Remedy No. 60, taken alternately for weeks or months till good health is established.

Styes can be averted occasionally by free bathing in hot water with boracic acid, one teaspoonful to the pint of water. The water must be kept hot while bathing. To accomplish this, the small dish with the boracic acid solution should be set in a larger dish of boiling water. After each bathing, spirits of camphor should be applied freely to the inflamed lid.

Squint-Eye; Strabismus.

This is a great detriment to any child or adult. Parents can do nothing for it themselves, but they should be very persistent in consulting an oculist on this subject, and then follow his advice carefully, as he may, by treatment alone, be able to correct the unequal action of the eye muscles. In some cases, wearing glasses assists materially in the correction. In extreme cases, an operation may be needed, which is neither painful nor dangerous to sight; but there are not so many of these cases demanding an operation now as formerly, as treatment and glasses are relieving most of them.

Tubercle and Unhealthy Mucous Membrane.

Parents should always remember that the tubercular taint or stain, when not inherited, usually enters the

body through some denuded or weakened part of the mucous membrane.

The mucous membrane is the lining or covering of the internal structures as the skin is of the outer parts of the body. The two main divisions of this membrane are those covering or lining the air passages and lungs, and those lining the digestive organs and mouth.

Healthy mucous membrane is, like healthy skin, able to resist the inroads of poisonous material. Denuded, sore, or injured mucous membrane loses this protective power, and then poisonous or contagious material, like dry tubercular dust or other infectious poisons, finds an easy ingress or road into an otherwise healthy body.

This diseased condition of the mucous membrane is commonly seen in the child suffering from recent or old catarrh of the nose, sore throat, enlarged tonsils, bronchitis or pneumonia,—all parts of the breathing organs.

It also occurs in the child with sore mouth, tender gums, decayed teeth, indigestion, diarrhea, or dysentery, all arising from diseased parts of the mucous membrane lining the digestive tract.

Past experience has shown that the great bulk of humanity have been continually exposed to tubercular infection at times. The numerous deaths from this disease make it impossible for people to be otherwise placed.

The resistance to infection is the "*Vis naturæ*" inherent in each individual. Those inheriting the tubercular constitution are known to have less of this resistance to tubercle than those fortunately born without this weakness.

Natural resistance to tubercular infection or contagion is also in direct ratio with the general good health of

the child. General good health may be defined, for our purpose, as a strong body containing plenty of good rich blood, and no broken, damaged, weak or sore tissues or mucous membranes.

The strong body may be likened to a beehive with no cracks, breaks, or openings except those required for daily use of the inmates.

Good, rich blood, in plentiful quantity, will then be well illustrated by the bees in the hive; always ready, able and willing to slaughter and cast out all unwelcome intruders such as tubercle.

Statistics show that only a very small proportion of children dying from tubercular affections have received the poison through the digestive tract. Some pathologists claim that not more than two per cent. of those under two years old are infected in this way.

This leaves the great bulk of these cases who do not inherit this weakness, and possibly many of them also, receiving their contagious stain through the air passages.

If, then, general good health is the protection requisite, what folly it is for a mother, who is herself delicate, to try to do the impossible by nursing her own child.

Or to consider it possible for her child to be safe when it does not gain at least four to six ounces weekly in weight from the first week of its life. Without this weekly gain it cannot enjoy that strong resistance needed against tubercle.

Or to think that a continued discharge from the nose, an obstructed nose or large tonsils are safe and will pass away as the child grows older.

Or to be satisfied with a child who has recurring sores in the mouth, is always cross and restless, vomits

frequently, and has such foul smelling stools as cannot come from any but a diseased digestive tract.

Such are only a few of the unnatural and unpleasant conditions which may give the thoughtful parent warning of tubercular possibilities ahead.

Only the best condition of health at all ages, giving the quietest sleep and the most vigorous growth, can be safely considered a reliable protection against this malady.

The low percentage of tubercular invasion through the digestive tract shows us that danger does not come through the milk and other food nearly so often as through breathing the dust laden with dry tubercular matter.

Water on the Brain; Hydrocephalus.

This is due to an increase of the natural fluids surrounding the brain, and is caused by an inflammation of the membrane covering the brain. When this occurs before the bones of the head become solid and fastened together at the sutures or joints, it causes the bones to spread apart, and allows the head to become greatly enlarged. The fontanelles of bad cases never close, and those of the mild ones remain open for three or four years.

Such children always look top heavy, the forehead projecting over the eyes and the sides of the head over the ears, while the voluminous top towers up like a two-story head. This largeness is often too much for the neck to support, and prevents young children from sitting up till quite old.

Many mild cases of small enlargement are bright and

keen mentally, but those of greater deformity may be equally weakened mentally.

The mild cases may be much benefited by medicinal treatment. A careful examination by the physician should be early obtained, and a proper line of treatment adopted. Most of these cases require a tonic or strengthening course to improve the general health.

CHAPTER XVIII.

REMEDIES.

In this chapter the preparation of foods, internal medicines, external applications, lotions, washes, baths, and disinfectants is explained in condensed form for ready reference. All mixtures, foods, and preparations referred to in the previous text will be found here also, as well as many that are not mentioned there.

There will be found also a list of remedies in common use and the method of computing the dose for different ages. As many remedies are ordered in drops, it has been found desirable to explain the differences existing in the sizes of drops of different liquids.

Dietary.

As three-fourths of the illnesses during the first two years of childhood are due to disturbances of the digestive organs, it has been found necessary to give most careful attention to the dietary of the infant. By this means it is hoped that parents will avail themselves of the most approved and successful methods in feeding their infants, not only to avoid sicknesses at present, but also to avoid illness and those bad results in development which are so common in later months and years, when infants are improperly nourished in the beginning of their lives.

The aim is not only to prepare foods suitable for those who are quite well, but also to give a range wide enough to suit the digestive organs of even the most delicate. The idea prominent with the writer is to always use foods for the infant of which all the constituents are known, and that will *nourish* and *develop all parts* of the *body* in *due proportion*, thus avoiding the inequalities and deformities commonly seen in the rickety, scorbutic, and other sickly children, when fed on unknown or proprietary foods, which rush the growth of one part of the body to the detriment of the other parts.

Cream and Milk Mixtures.

No. 1. These mixtures for all months during the first year are shown on pages 87, 98 and 104.

Cereal or Starch Waters.

No. 2. Oatmeal Starch Water.—Oatmeal, one tablespoonful; or rolled oats, two tablespoonfuls; water, one quart. Boil for three hours, adding boiling water enough to have a pint when finished. This is added to milk for infantile feeding, as shown on pages 109 110, 137 and 138.

No. 3. Oatmeal Jelly.—Made like No. 2, but increase the oatmeal to twice the amount. Used for older children, where a stronger food than oatmeal water is required.

No. 4. Barley Starch Water.—Pearl barley, one tablespoonful; water, one quart. Cook as directed in No. 2, and use as a substitute for oatmeal water in loose bowels.

No. 5. Rice Starch Water.—Rice, one tablespoonful (heaping); water, one quart. Cook like No. 2. Is

used as a substitute for milk in cholera infantum, or as an addition to milk for feeding infants (pages 109, 110 137 and 138).

No. 6. Arrowroot Water.—Add one teaspoonful of arrowroot to a little cold water; rub till pasty. Add one pint of boiling water and boil from five to ten minutes, stirring constantly. This is often added to milk mixtures to break the solid curd forming in the child's stomach.

No. 7. Toast Water.—Two slices of dark brown toast, added to one quart of boiling water. When cool, use for sick stomach or as a drink when thirsty.

Albumen Mixtures.

No. 8. Albumen Water.—The white of one egg; one small glassful of water. Rub the egg with a case knife on a plate with a spoonful of water. Do not whip the egg, as this makes it frothy. Mix the egg and water together, strain, and sweeten if needed for the taste of the child. Or. mix the egg and water together in a large-mouthed bottle and shake slowly until dissolved; then strain and flavor as needed. This must always be fed cold.

This is used occasionally in bowel disturbances as a substitute for milk, but must be carefully watched, as it often causes foul, green stools.

No. 9. Egg and Barley Water.—White of one egg; barley water, eight ounces; white sugar, one and one-half teaspoonfuls. Is often useful in a convalescing child when milk is not successful. Rice water is made in the same way as barley water, and may be substituted for it.

Gum Waters.

No. 10. Gum Arabic Water.—Gum arabic, one heaping tablespoonful; boiling water, one pint. Mix and let stand. When dissolved, sweeten and add lemon to taste. Is used like barley or rice water.

No. 11. Gelatine Water.—Soak a piece of gelatine the size of the palm of the hand in cold water; then dissolve it in half a pint of boiling water. It is used like gum arabic water.

No. 12. Flaxseed Tea.—Flaxseed, one tablespoonful; boiling water, one pint. Let simmer for an hour, then strain and sweeten. Flavor with lemon to taste.

No. 13. Dr. J. F. Meigs' Gelatine Food.—Add one teaspoonful of freshly made arrowroot paste (Remedy No. 6) to half a pint of boiling gelatine water (Remedy No. 11). Flavor with sugar and cream to taste. Dr. Meigs found this suitable for delicate stomachs.

Whey and Its Mixtures.

No. 14. Whey.—Add one or two teaspoonfuls of essence of pepsin to half a pint of old, sweet, warmed milk. Jersey milk should not be used. Let stand; when curdled, whip with a fork and strain soon after. Fresh milk does not make whey easily. This is useful as a temporary food in delicate stomachs, but cannot be continued long without meat juice or starch being added regularly to it.

No. 15. Wine Whey.—Old, sweet, boiling milk, eight ounces; sherry wine, two ounces. Let stand till curdled, then whip and strain.

No. 16. Whey and Cream Mixture.—Whey, three ounces; cream, one to one and one-half ounces; warm water, two ounces; sugar (cane), one-half teaspoonful.

This is a very useful mixture, and may be continued indefinitely as a food in children with a constipated condition of the bowels. It should be fed promptly when mixed.

Foods for Very Delicate Infants.

There is a class of children whose stomachs have been damaged by unhealthy mother's milk, cow's milk improperly prepared, patent foods, overfeeding, trying all kinds of foods, sudden weaning, or feeding from the parents' table. These children have suffered from inflammation of the lining of the stomach and bowels as a consequence of this dietetic abuse. They have lost the power to digest milk, and it causes vomiting and loose, green, foul stools whenever fed, even in small quantities. For these children, the following mixtures will often be found nourishing and most acceptable, not causing any vomiting and giving stools well-digested and healthy in odor, color, and consistence.

Milk Foods for Very Delicate Infants.

No. 17. Cream and Rice Mixture.—Cream, one ounce (two tablespoonfuls); rice water, two ounces; lime water, two teaspoonfuls; water (boiled), two ounces; sugar, one teaspoonful. With this mixture, the mother should never feed enough to cause vomiting. Feed every two hours. Decrease the amount of cream if the bowels are loose or show curds in the stool. When constipated, increase the cream. Increase the proportion of rice water as long as there are regular daily stools. Rice water produces constipation when fed too freely. This is a very nutritious food and may be continued indefinitely by gradually increasing the proportions or the amount fed

at a meal. Always wait two days after each increase to see that healthy stools follow, and thus allow another safe increase.

No. 18. Whey and Rice Mixture.—Whey, two ounces; rice water, two ounces; lime water, one teaspoonful; water, one ounce; sugar, one teaspoonful. This is a very mild food, but a very nourishing one. It is applicable to the extremely tender stomachs following bad attacks of indigestion, or long continued indigestion, with loose, green, foul stools. It is suitable to the same class as No. 15, and will agree with the most delicate of them if not overfed. The whey is more easily digested than the cream, but should be varied in amount in the same way as the cream is in No. 17.

No. 19. Cream, Whey, and Rice Mixture.—Cream, one ounce; whey, two ounces; rice water, two ounces; granulated sugar, one-half teaspoonful. This is a very valuable and nutritious food for delicate children where it does not loosen the bowels.

No. 20. Flour Ball.—Boil one pound of flour in a pudding-bag ten or twelve hours. When cold, dry it thoroughly, and peel off the thick outside skin, leaving the dry inside ball. Grate one teaspoonful of this ball, and add to half pint of hot dilute milk. This makes a good food for many children over six months old.

Nitrogenous or Meat Foods.

No. 21. Veal Tea.—Put one pound of finely cut lean veal into one pint of warm water; let it simmer for two hours, adding warm water to maintain one pint of liquid. When cool, remove the fat, warm again and feed.

No. 22. Beef Tea.—Add one pound of lean minced beef to one pint of warm water; let these stand for an

hour, then simmer for an hour. When cold, remove fat, warm, season and feed.

No. 23. Twenty Minute Beef Tea.—One pound minced lean beef; boiling water, half a pint. Simmer for twenty minutes, strain into a cup, and place in ice water. Remove the fat, warm, season and feed.

No. 24. Scraped Raw Meat.—Scrape fine tenderloin steak into shreds; pound these in a mortar to a pulp; flavor with salt or sugar, and make into little balls, or mix with a little water into a cream for young children. May be fed warm or cold.

This will often be retained on a tender stomach when other foods are rejected. It is very nourishing, but causes foul, dark stools. Feed one or two teaspoonfuls each day for children under one year old.

No. 25. Beef Juice.—Is expressed from lean meat, slightly broiled, by cutting it in squares and then squeezing these in a lemon press. Where a large amount is required, a meat press, such as shown in Figure 21, should be used. These can be obtained at any good hardware store for fifty cents.

In using the different forms of meat preparations for feeding infants, care must be exercised neither to loosen the bowels nor clog the kidneys by feeding too freely. Where there is any evidence of deficient urine, while the infant obtains plenty of liquid, the meat preparations should be abandoned, and the cream or whey ones used. Nothing stimulates sluggish kidneys so well as the whey in milk, when milk itself cannot be taken.

Where rice or barley water is added to meat juices, care should be taken to first know that the infant's stomach will receive the meat juice alone without vomiting. This requires careful trial. The rice or barley

water should be added only in teaspoonful quantities to avoid vomiting, and always wait the two days needed by the stools to prove perfect digestion before again increasing the amount of food. While these are healthy, the rice or barley water may be increased one teaspoonful to each feeding every two days. This speed of increase is as rapid as it is safe to go in these delicate children.

Substitute Foods in Place of Milk or Proprietary Foods for Infants with Damaged Digestive Organs.

No. 26. Where a mother finds it necessary to select some form of animal or meat juice to nourish a child who cannot digest milk or other foods, the following tables, written in their order of increasing strengths, and also showing the strength of the different elements, will readily suggest the one most suitable:

No. 1. Whey.—Composed of proteids, 0.86; fat, 0.32; sugar, 4.75. Will only partly nourish; should have rice or barley starch gradually added to it. Beef juice may also be added in small amounts to increase the nourishing power.

No. 2. Beef Broth.—Composed of proteid, 1.02; extractives, 1.85; fat, 0.00; sugar, 0.00. This must also have rice or barley starch added to it after a few days' feeding, to nourish a child, or as soon as the stomach accepts the food properly.

No. 3. Beef Juice, Expressed.—Composed of proteids, 2.95; fat, 0.60; extractives, 3.45. Stronger than beef broth; acts on the bowels of some infants. Should also have rice or barley starch added but heat only to 100 degrees when feeding.

No. 4. Beef Juice, Cold Water Process.—Composed of proteid, 3.00; fat, 0.00; extractives, 1.95. A little stronger than the expressed form. Must not be heated over 100 degrees. Should have rice or barley added at feeding time. Is also laxative to some.

No. 26½. Lime Water.—Place a lump of lime, as big as an orange, in a gallon of boiled water. After the lime slacks, stir the water once daily; cover well, and use as needed. Add fresh water as used. Lime water cannot be made over a definite strength, as water only dissolves so much lime, whether hot or cold. It is never too strong.

Peptonized Foods.

These are needed at times during convalescence from diseases of the stomach and bowels, where the digestive glands are not able to secrete enough fluid to digest the food received, and prevent that decomposition of it which always causes distress with foul stools, and perpetuates the sickness. Peptonization is mostly applicable to milk and meat juices. Starchy foods are not changed by pepsin, but are digested by pancreatin.

The secretions of the stomach and pancreas are used for this purpose. They are called, respectively, pepsin and pancreatin, and are put up in tablets by Parke, Davis & Co., and in tubes by Fairchild. Two tablets are equal to one tube of five grains.

For peptonizing, Nature's heat, about 100 degrees Fahrenheit, is needed. Cold checks the process temporarily, and overheating or boiling destroys it entirely. The heating should run from 105 to 115 degrees for rapid work. (The 115 degrees, proper heat, is all the finger will bear without scalding it.) When continued

too long, this develops the bitter taste of the peptones and spoils it for feeding. To avoid this requires constant tasting, to detect the first evidence of it. The mixture should then be quickly boiled to check further peptonizing before reaching the stomach of the patient. It can be warmed again when fed.

No. 27. Peptonized Milk.—Dissolve one peptonizing tablet or half a tube in four tablespoonfuls of cool water, then add half a pint of milk. Heat to 110 degrees Fahrenheit in the water bath, and continue until the bitter taste commences, about twenty to thirty minutes, then boil quickly. Children will not take it if the bitter peptone taste is developed.

No. 28. Peptonized Milk Mixtures, Sterilized.—These are made by sterilizing the mixture of cream, or milk and cream, that may be needed for the child. First dissolve one tablet or half tube in two ounces of cold water for every half pint of mixture you deem suitable to the infant, and proceed as in No. 27. While hot, pour into bottles just out of boiling water, stopple with sterilized cotton, and put in the refrigerator.

No. 29. Peptogenic Milk Powder.—This is a proprietary article, which is suited to some children, but like all standard strengths, lacks that elasticity needed in infant feeding. It contains casein in too large proportions for most infants. It is mixed with the milk, cream and water, according to directions given with it.

No. 30. Peptonized Beef Tea.—After making beef tea as in No. 22, it is cooled to 115 degrees, or where it will not scald the finger; then one tablet is added to every half pint, and stirred well till dissolved. Continue this heat for an hour or two, testing for the bitter taste; then boil quickly, strain and season.

No. 31. Peptonized Oysters. — Cut up, mince, or pulverize finely half a dozen oysters. Boil them with their juice and half a pint of water; add twenty grains extract pancreas and fifteen grains of bicarbonate of soda and heat to 115 degrees for an hour and a half, or till the bitter taste commences. Then boil with half pint of milk and season to taste.

No. 32. Peptonized Gruel.—To half a pint of ordinary water gruel, add half a pint of hot peptonized milk.

No. 33. Peptonized Milk Toast.—This is made by adding peptonized milk (Remedy No. 27) to the toast, then serving it as ordinary milk toast.

No. 34. Peptonized Milk Punch.—In this preparation, peptonized milk (Remedy No. 27) is added to the stimulant and crushed ice, instead of ordinary milk.

No. 35. Nutrient Enemata Peptonized.—The enema more than any other food demands predigestion. It should be made a standing rule to always peptonize beef tea or milk used in this way. The digestive power of the rectum is so small, and the decomposing power is so great, that it seems wrong not to protect the enema from the latter force by peptonizing it. Bitterness here offers no obstacles, so that predigestion can be carried to its greatest power in order to facilitate rapid absorption, which is the natural function of the lower bowel. Small enemas must be used in infants, as the bowel is small and rejects an enema if too large. About one teaspoonful may be given for every year of the infant's age.

Any of the peptonized meat or milk preparations may be used. Preparations of blood may be used raw, but are better peptonized. Peptonized milk or beef juice may be used, but it is better to inject these mixtures while warm without boiling, thus allowing the con-

tinued action of the peptonizing tablets or tubes in the rectum. Enemas may be repeated every eight hours.

No. 36. Peptonized Egg Enema.—White of one egg, rubbed up with three tablespoonfuls of water, requires two tablets or one tube to predigest it. Warm the mixture to 105 degrees and inject while warm with a baby ear syringe or a hard rubber one (Figs. 3 and 4). This is very nourishing and may be repeated every eight hours.

Remedies for Internal Use.

No. 37. Soda Mint. — Bicarbonate of soda, forty grains; aromatic spirits of ammonia, one-half fluidrachm; peppermint water enough to make two fluidounces. Put one teaspoonful in a cup of hot water for a child one year old. Is useful for gassy or foul stomach from over-eating.

No. 38. Laxative Alkaline Mixture.—Bicarbonate of soda, forty grains; aromatic syrup of rhubarb, four fluidrachms; syrup of senna, five fluidrachms; syrup of orange, one fluidounce. One teaspoonful two or three times a day as needed, in sour, gassy stomach with constipation or foul-smelling stools.

No. 39. Chalk and Bismuth Mixture.—Subnitrate of bismuth, two drachms; chalk mixture, two fluidounces; paregoric, two fluidrachms. One-half to one teaspoonful every two to four hours as needed for loose bowels in a child six months to two years old.

No. 40. Saline Aperient.—Sulphate of magnesia, two ounces; cream of tartar, two ounces. Give one-half teaspoonful in water every three hours till the bowels move freely, in a child one year old.

No. 41. Sore Mouth Powder.—Powdered borax, one

drachm; powdered sugar, four drachms. Put a pinch on the tongue every two or three hours. The child's tongue will work it around all sore parts. This secures continuous dressing of the mouth, and avoids the pain and soreness caused by washing or swabbing.

No. 42. Foul or Sour Stomach Powders.—Calomel, one grain; soda bicarbonate, ten grains. Divide into ten powders, and give one every one or two hours until the bowels move.

No. 43. Digestive Assistants.—Essence of pepsin, one ounce; essence of pancreatin, one ounce. Give ten to twenty drops after each meal for a child one year old. Increase the dose gradually till the stools show perfect digestion.

No. 44. Slimy Stool Powders, No. 1. — Bismuth subgallate, one drachm; soda bicarbonate, one-half drachm. Divide into twenty powders and give one every three hours. Always lessen the food with these powders.

For Frequent Loose, Slimy Stools (with Pain), No. 2.—Bismuth subgallate, one drachm; soda bicarbonate, one-half drachm; Dover's powder, ten grains. Divide into twenty powders. Give one every two hours as needed for a child nine to twelve months old.

No. 45. Fever Mixture, No. 1.—Sweet spirits of nitre, two fluidrachms; nitrate of potash, one-half drachm; liquor ammoniæ acetate, two fluidrachms; simple syrup, one-half ounce; water enough for two ounces. One teaspoonful every two to three hours for a child one year old till fever subsides.

No. 46. Fever Mixture, No. 2.—Put ten drops of tincture of aconite in one-half cup of water, and give one teaspoonful every fifteen minutes till the child perspires. For a child one year old.

No. 47. Croup Mixture.—Syrup of ipecac, three fluidrachms; hive syrup, four fluidrachms; water, one and one-half fluidounces. Half a teaspoonful every half hour till the child vomits, and then repeat the dose every two or three hours as needed.

No. 48. Pink Powder for Colds.—Biniodide of mercury, one grain; milk sugar, one hundred grains. This makes one hundred doses. Give one dose every two or three hours to a one-year-old baby.

No. 49. Cough and Cold Mixture.—Syrup of Dover's powder, one fluidrachm; tincture of aconite, ten drops; enough simple syrup for two ounces. Half a teaspoonful every two hours for a child one year old.

No. 50. Cold, Cough, and Fever Powders.—Acetanelid, one-half drachm; Dover's powder, one-half drachm. Divide into thirty powders. Give half a powder every two hours while awake or restless. Suitable for all ordinary colds, croup, whooping cough, or obstinate coughing at night. Dose for one-year-old child.

No. 51. Jeaunel's General Poison Antidote, No. 1.—Calcined magnesia, two ounces; animal charcoal, one ounce; water, twenty fluidounces.

No. 2.—Monsel's solution of iron, two fluidounces. In cases of poisoning, mix these two together and shake well. Give two tablespoonfuls every half hour or less till vomiting ensues.

No. 52. Emetics.—A teaspoonful of syrup of ipecac every fifteen minutes till vomiting follows.

A tablespoonful of goose grease or any drippings used in the kitchen for cooking.

A half teaspoonful of alum in a wineglassful of water or syrup.

Tickle the throat with a feather, your finger, or a

spoon handle, if vomiting does not quickly follow those remedies.

A teaspoonful of mustard in half glass of warm water will often succeed when other remedies fail.

Two teaspoonfuls of common salt in a wineglassful of water.

No. 53. Injection for Convulsions.—Bromide of potash, five grains; bromide of soda, five grains; chloral hydrate, five grains; water, two fluidounces. Inject one tablespoonful into the bowel and repeat in two hours if needed.

No. 54. Mixture to Prevent Convulsions.—Bromide of potash, one-half drachm; chloral hydrate, fifteen grains; simple syrup, two ounces. Give one teaspoonful every hour, while nervous or feverish, to prevent convulsions. Suitable dose for one-year-old child.

No. 55. Sore Throat Gargle, No. 1.—Soda bicarbonate, one-half teaspoonful; hot water, one-half cupful. Use as a gargle every three hours in children eight to twelve years old.

No. 2.—Lime water, one-half cupful; hot water, one-half cupful. This is very pleasant, and strong enough for children eight to twelve years old.

No. 56. Worm Powders.—Santonin, twelve grains; calomel, three grains. Divide into six powders. Give one night and morning while fasting. Suitable dose for a child five to ten years old.

No. 57. Injection for Seat Worms.—Quassia chips, one ounce; common salt, one-half ounce; water, one pint. Soak over night and inject very slowly all the bowel will hold. Repeat once each week till all are removed.

No. 58. For Bed Wetting.—Tincture of belladonna, one-half ounce. Give five drops at bedtime, and in-

crease the dose one drop each night until it produces a fine scarlet rash on the skin. Mark this "Poison."

No. 59. For Scalding or Painful Urine.—Sweet spirits of nitre, one ounce; acetate of potash, one drachm. Give five to ten drops every three hours to one-year-old child.

No. 60. Blood Tonic.—Syrup of iron iodide, or syrup of iron phosphate, one ounce. Give three to ten drops three times a day. Continue this for one to three months or till health and color are perfect. This dose is for one-year-old child.

Poultices and Plasters.

Poultices are not used now as much by the medical profession as they were in years gone by. This is due to the danger following dressings of an unsterilized nature on raw or open sores or wounds. All poultices should be made thoroughly sterile by boiling, and then when applied, they should be bandaged on carefully so that they cannot move or become exposed to air till such time as they should be replaced by a new poultice. A poultice should be covered by paraffine paper, oiled silk, or thin rubber cloth, and the bandages applied over these. By doing this, both the heat and moisture of the poultice are retained for a long time, and the success of the dressing is materially enhanced.

Where a poultice dries too rapidly, it is because it has not been boiled enough, is not made thick enough, or does not contain enough mucilaginous or oily matter. A poultice should be made about one-half inch thick, and soft enough to fit or mould to the shape of the part receiving it; but not so soft that it will run away from the higher parts when applied.

The object of a poultice is to apply moist heat and thus soothe swollen or painful parts. It should be renewed

before it becomes cold or dry. According to the covering of a poultice or its exposure, is the time it requires before renewal. Painful swellings demand and are relieved by heat, and thus require frequent renewals of the poultice. Other parts not painful do not require change of poultice while it remains moist and comfortably warm. Thus the time a poultice is beneficial varies from one to eight hours. Where the ingredients from which a poultice is made are dry and crumbly, like bread or meal, sufficient lard, oil, or vaseline should be added and mixed well with the poultice to give it cohesiveness, prevent it drying while applied, and avoid sticking to the skin or sore parts.

No. 61. Flaxseed Poultice.

Add flaxseed meal very slowly to water while boiling until all becomes as thick as porridge. Continue the heat with constant stirring for ten minutes, then spread on cotton and cover with gauze or cheese cloth, which makes the cover next the skin. Test the lower side of the poultice against the cheek, to secure a comfortable heat before applying it. Cover with paraffine paper, oiled silk, rubber, or flannel to retain the heat, and bandage snugly to avoid slipping or moving. Renew when cool. If the flaxseed meal is very powdery, add one or two teaspoonfuls of oil or vaseline to the poultice to prevent drying.

No. 62. Slippery Elm Poultice.

This is made from ground slippery elm bark in the same way as the flaxseed poultice.

No. 63. Mush Poultice.

This is made from cornmeal, but requires oil or vaseline also to make it cohesive. It is not as good as the flaxseed or slippery elm poultice.

No. 64. Bread and Milk Poultice.

In this the bread and milk are boiled together till thoroughly soft. Stir well and squeeze out all extra milk before applying.

No. 65. Bread and Water Poultice.

This is made in the same way as No. 64, but requires to have the extra water squeezed out of the bread and vaseline or lard mixed in to make the poultice cohesive.

No. 66. Bran Poultice.

When a light but thick poultice is required, bran should be boiled with water, and all placed in a bag and tied tightly. After pressing out the surplus water, apply to the part, but cover well as this cools very rapidly.

No. 67. Hop Poultice.

Where a very light poultice is required, hops are used instead of bran. They require most perfect covering to retain the heat, as they are so open and loose that they cool very rapidly when exposed.

No. 68. Starch Poultice.

This is a smooth poultice intended as a soothing application to abraded or tender surfaces. It is made of thick boiled starch spread on cotton and applied directly without any intermediate muslin or gauze.

No. 69. Mustard Poultice

And mustard plaster (Remedy No. 76) are the same.

No. 70. Charcoal Poultice.

This was popular and often used before the advent of disinfectants. It is made by mixing powdered charcoal and flaxseed meal together in equal parts, or by sprinkling

powdered charcoal freely over the surface of the flaxseed poultice. This was applied to foul smelling sores.

No. 71. Jacket Poultice.

In lung affections, the linseed poultice seems to be losing some of the popularity it held a few years ago. Perhaps the almost certain crop of pimples or boils which follow on the seat of its application has deterred some physicians from using it.

This poultice is made wide enough to reach from the collar bone to the lower edge of the ribs, and long enough to surround the child and be pinned together like a bandage. Short pieces of cloth are pinned to the upper edge of the poultice and passed over each shoulder and pinned to the opposite edge to keep the poultice from sliding down. These poultices need not be changed more than two or three times in the twenty-four hours, except where there is severe pain or cyanosis. Then rapid, hot changes are required to relieve this distress.

No. 72. Antiseptic Poultice.

This is an admirable dressing and very acceptable to the patient as well as the physician. It is made by cutting cheese cloth or gauze into proper sized squares, and repeating them till thick enough, ten to twenty thicknesses. These are soaked in hot disinfecting lotion (Remedy No. 94), and applied well covered with paraffine paper or oiled silk, to retain the heat and moisture, and then bandaged. This dressing is light, sweet, warm, and comfortable; better than the ordinary poultice.

No. 73. Cotton Poultice.

This is probably the most comfortable and suitable form of poultice that can be applied to boils, abscesses,

sore ears, or other painful parts. For this poultice, squares of absorbent cotton are cut the size required and the thickness needed to keep warm. All these squares except one are saturated with a hot antiseptic lotion (Remedy No. 94), and applied to the sore part. The dry one is used to cover the moist ones, and all are covered with paraffine paper, oiled silk, rubber cloth or flannel, and bandaged comfortably. If properly applied, this does not require renewal before eight to twelve hours.

This cotton poultice controls all bad odors, absorbs all discharges, and disinfects the skin and the sore also. No pimples follow this dressing, and it prevents any poisoning of the wound or sore.

No. 74. Turpentine Stupe.

This is made by sprinkling a few drops of turpentine on a flannel cloth just wrung out of hot water. It should be applied as hot as possible and well covered with paraffine paper or oiled silk, and dry flannels over all. These stupes are beneficial, but require very frequent changes to keep them hot. The turpentine should be removed when the skin is irritated and red.

No. 75. Spice Poultice.

This is useful for abdominal pain in children. It is made of equal parts of ground cinnamon, cloves, allspice and ginger, with one-fourth part of cayenne pepper if needed very strong. All should be placed together in a flannel bag and spread equally. Wet it with alcohol or whisky. This poultice lasts indefinitely by again wetting it with the alcohol. It is a mild, warming dressing, and the aromatic oils are beneficial.

No. 76. Mustard Plaster.

This should be called a poultice rather than a plaster. Mustard plasters are made of variable strengths, according to the age of the patient, the strength of the skin to which it is to be applied, and the effect required on the skin. Mustard deteriorates by exposure. It should always be kept in a tin or glass vessel, closely covered from the air. When kept this way it remains good, and does not lose its vesicating power on the skin when moist. Mustard plasters are made by mixing flour or linseed meal with the mustard powder, and then moistening all well with hot water. The mixture should be well stirred till all becomes a thin paste, and shows no lumps or dry parts. When not stirred sufficiently before applying, a mustard plaster usually dries rapidly and fails to redden the skin. Such a plaster is of no use. It fails in the only power it has, and must be again moistened over the whole surface to do any good.

The mustard plaster may be one-half mustard or only one-eighth mustard; usually, one-eighth to one-quarter is strong enough for children. When mixed and spread on muslin or cotton, the mixture should be wet enough to soak through the muslin cover and moisten the skin well or it will be useless. Dry mustard has no irritating effect, and a child might sleep in a bed made of it.

Mustard must be mixed with water, not vinegar, to work properly. As soon as the skin shows a slight blush it should be removed from a child; but on an adult it should remain till the skin is well reddened. The burn or blister made by mustard when applied too long is very painful.

With good mustard well moistened, the skin will become red and painful in from five to ten minutes. It

should then be removed. If the skin is then dressed with oil, the smarting ceases but the good effects of the mustard are largely lost.

No. 77. Pepper Plaster.

This is made by sprinkling black pepper with a little red pepper or mustard, on thin slices of bacon, or a well-larded cloth, and binding it on continually. The pepper should be renewed each morning and evening till redness is produced on the skin. This is a popular dressing for sore throats and coughs.

No. 78. Cotton Jacket.

This is commonly used in bronchitis and pneumonia, instead of the old-fashioned poultice. A high fitting jacket is made of two layers of cotton, and a layer or two of cotton batting is placed between them. This is fastened snugly around the body, and over the shoulders to prevent it sliding down. Oiled silk or paraffine paper may be placed over the batting before covering it where a perspiring effect is desired. This latter form will require frequent renewing. This makes a warm and light dressing, and is decidedly preferable to the flaxseed poultice in lung diseases.

No. 79. Ginger Poultice.

This is made by mixing powdered ginger with boiling water, sufficient to thoroughly moisten it, the same as a mustard poultice. It makes a pleasant, warm dressing, which does not irritate like mustard and is warmer than flaxseed meal.

For External Applications—Ointments.

No. 80. Zinc Ointment.—Oxide of zinc, two drachms; lanolin, five drachms; albolene, one drachm; salicylic acid,

ten grains. This is an excellent dressing for abraded surfaces, sore heads and faces, and eczematous surfaces. If continuously applied it will cure the worst attacks of eczema on infants, when the diet is reduced so as to produce stools healthy in odor, color, and consistence.

No. 81. Beeswax Ointment.—Benzoated lard, six ounces; yellow beeswax, one ounce; salicylic acid, twenty grains. Melt the wax in a tin cup, then add the lard. When all is melted remove from the fire and stir till cool, then add the salicylic acid and continue stirring until cold. This makes an excellent varnish to use on the face or hands when wind chafed, as it is not perceptible. It also is very valuable for wet or raw surfaces on infants or adults, as it does not dry in, and it sheds the moisture perfectly. Most excellent for burns or scalds. It prevents or cures a mild eczema.

No. 82. Ringworm Ointment, No. 1.—Citrine ointment, one part; vaseline, seven parts. This should be well rubbed into the skin twice daily, or oftener, on exposed surfaces. It is useful also in itch.

No. 83. Ringworm Ointment, No. 2.—Sulphur, one drachm; tar ointment, one drachm; benzoated lard, one ounce. Rub in, three times daily, until well absorbed.

No. 84. Malaria Ointment.—Quinine, one drachm; lard, two ounces. Rub well into the skin around the body, one teaspoonful night and morning. Do not bathe or change the undergarments every day. Always use plenty of soap when bathing.

No. 85. Pile Ointment.—Morphine, five grains; tannin, one drachm; benzoated lard, two ounces. Apply as needed, two or three times daily, to relieve the pain and swelling.

No. 86. Boric Acid and Zinc Ointment.—Boric acid,

one-half drachm; oxide of zinc, one drachm; lanolin, six drachms; albolene, one-half drachm. An excellent disinfecting ointment for all sores or abrasions.

Solutions and Mixtures.

No. 87. Carbolized Oil.—Carbolic acid (pure), one-half drachm; fresh olive oil, two ounces. "Poison." Useful on foul surfaces.

No. 88. Boric Acid Nipple Lotion.—Boric acid, one drachm; boiled water, four ounces. Used to bathe the nipples after each nursing for the first week or two, to prevent sores or to heal them at any time.

No. 89. Tannic Acid and Glycerine Nipple Lotion.—Glycerite of tannic acid, one fluidounce; boiled water, one and one-half fluidounces. To be painted on the nipples after bathing with No. 88.

No. 90. Bismuth Nipple Ointment.—Subgallate of bismuth, one drachm; benzoated lard, one ounce. Apply this to the nipples after nursing each time. This is a soft, comfortable, and healing dressing. The nipples should be first bathed with Remedy No. 88 before applying the ointment. No washing is needed before nursing, as the ointment is not poisonous. It will heal sore mouth if present in the baby.

No. 91. Running Ear Lotion.—Sulphate of zinc, twenty grains; carbolic acid, ten drops; tincture of iodine, one-half drachm; glycerine, two ounces. Fill the ear once each day while the child is lying down. After fifteen minutes he may rise and allow the medicine to run out. Always syringe first with warm water. Keep this lotion warm. If too thick to pour well, it should be thinned with water.

No. 92. For Enlarged Glands.—Tincture of iodine, one-half ounce; glycerine, three ounces. Keep constantly applied over the swollen glands, and cover carefully with a cloth to avoid rubbing it off. This does not blister or smart, and should be continued till all swelling disappears.

No. 93. Chilblain Mixtures, No. 1.—Collodion, one ounce; tincture of iodine, one drachm. Paint on the sore part once each day. Keep this mixture securely corked, as it evaporates rapidly.

No. 2.—Tincture of iron, one ounce. Paint once or twice each week. This is a rapid and prompt cure in chilblains with unbroken skin.

No. 94. Boric Acid Antiseptic Wash.—Bŏric acid, one-half ounce; boiled water, one pint. Used for washing all sores, bruises, and abrasions, and for moistening dressings of all kinds.

No. 95. Carbolic Acid Lotion.—Add one teaspoonful of carbolic acid to each pint of boiled water. Mark this "Poison."

No. 95½. Saline Solution.—Common salt, one drachm; boiled water, one pint. Used commonly in catarrh and for burns and sores.

No. 96. Corrosive Sublimate Antiseptic Lotion.—Dissolve one antiseptic tablet (corrosive sublimate) in one pint of boiling water. If marked "Poison" this may be kept indefinitely as a disinfecting wash or dressing for sores. It rusts all metals rapidly, and must be kept in a bottle.

No. 97. Mouth Wash.—Borax, one-half drachm; tincture of myrrh, one-half fluidrachm; glycerine, one fluidrachm; boiled water enough to make a fluidounce. This must be applied very gently to the inside of the

mouth several times daily, in thrush or any form of sore mouth or gums. A camel's hair brush should be used for this purpose.

No. 98. Eye Lotion.—Sulphate of zinc, two grains; boiled water, one fluidounce. Drop in the inner corner of the closed eye morning and evening. Then open the eye.

No. 99. Astringent Gargle.—Tannic acid, one teaspoonful; glycerine, four teaspoonfuls; water, one tumblerful. Use as a gargle after rinsing the throat with warm water.

No. 100. Pepper and Soda Gargle.—Cayenne pepper, a small pinch; baking soda, one teaspoonful; hot water, one cupful. Gargle well with this every three hours. This is very valuable in all sore throats, but too strong for young children.

No. 101. Nose Bleed Lotion.—Tannic acid, two drachms; glycerine, two fluidrachms; water, two fluidounces. To be injected or snuffed up the nose in obstinate cases.

No. 102. Alum Lotion.—Alum, four drachms; alcohol, eight fluidounces; water, eight fluidounces. Used for excessive perspiration or threatened bed-sores.

No. 103. Cooling Lotion.—Carbolic acid (pure), thirty grains; ether, two fluidrachms; alcohol, six fluidounces. Brush on inflamed or swollen parts and let dry. Mark "Poison."

No. 104. Skin Lotion.—Compound tincture of benzoin, one and one-half fluidrachms; glycerine, one and one-half fluidrachms; rose water, three fluidounces. A useful application for tender skin, chapped hands and face.

No. 105. Freckle and Complexion Lotion, No. 1.—

One antiseptic tablet (corrosive sublimate); water, two ounces. Apply well twice a day. This will remove moth and brown liver spots from the faces of women bearing children.

No. 106. Freckle Lotion, No. 2.—Dilute acetic acid, one-half fluidounce; rose water, one-half fluidounce. Apply once each day.

Powders.

No. 107. Camphor Powder Compound.—Camphor, one drachm; oxide of zinc, one ounce; starch, one-half ounce. Rub into a fine powder. For dusting the skin.

No. 108. Boric Acid and Zinc Powder.—Boric acid, one-half ounce; oxide of zinc, one ounce. Rub into a fine powder. For rough and scalded skin.

No. 109. Perspiring Powder, Tannin and Zinc.—Tannin, one-half ounce; oxide of zinc, one-half ounce. Rub into a fine powder. Dust into the stockings for perspiring or scalded feet, or under the arms.

No. 110. Bismuth and Zinc Powder.—Bismuth subnitrate, one ounce; oxide of zinc, one-half ounce. Rub into a fine powder. Dust on sore nipples, into cracks and folds of the skin, to heal or prevent soreness.

Disinfectants.

No. 111. Carbolic Acid.—Carbolic acid, six ounces; water, one gallon. Suitable for clothing, dishes, metals, and hands of nurses. Clothes should be soaked in it half a day and then boiled. Can be used on curtains and sheets spread over doors and windows.

No. 112. Chloride of Lime.—Chloride of lime, six ounces; soft water, one gallon. Should be kept in the vessel to receive the urine and feces of contagious

patients. Let stand for several hours before emptying.

No. 113. Copperas.—Put a lump as big as a walnut in the chamber with half a pint of water to receive discharges of all kinds—feces, urine, expectoration, and vomited matter from infectious and contagious patients.

No. 114. Chlorinated Soda.—Solution of chlorinated soda, four fluidounces; water, ten ounces. Useful for hands and dishes, but not for silverware, as chlorine colors all silver black.

No. 115. Disinfectant Bath.—Dilute No. 111 three times with water, or No. 114 four times. These can be used for final bathing of a child after scarlet fever or any contagious disease; or for nurses when leaving such cases.

No. 116. Corrosive Sublimate Solution.—Dissolve eight antiseptic tablets (corrosive sublimate) in a gallon of water. This can be used to disinfect floors, woodwork, rubber and leathers, but not metal parts.

No. 117. Disinfecting Vapor.—Pure carbolic acid, one ounce; oil of eucalyptus, one fluidounce; turpentine spirits, four fluidounces. One or two tablespoonfuls put in hot water and kept simmering constantly. Must avoid coming near the fire. Is useful in the room of the diphtheritic or patient with foul odors.

No. 118. Dry Disinfectants.—Chloride of lime and copperas may be used freely in closets and cesspools.

Miscellaneous.

No. 119. Massage. — This is professional work, though many presume to practice it who do not even understand its principles. If needed on a child for any serious trouble, an experienced hand should perform it. Mothers should also remember that they can do

a great deal in colic, sore back and strained limbs by steadily rubbing and heating the painful parts. Constipation will often yield to rubbing and kneading of the abdomen. Gas in the bowels frequently causes pain and is expelled by rubbing and heating. This should be done with the bare hand and some sweet oil.

No. 120. Different Measures and Their Sizes.—The relative values of drops, teaspoons, fluidrachms, and fluidounces are shown in the following table:

Physicians specify minim instead of drop in writing prescriptions, because it is a standard size, and the graduate measure used by the druggist is a minim, *not a drop*, measure. This makes the compounding of prescriptions perfectly accurate and correct, no matter what drug is ordered.

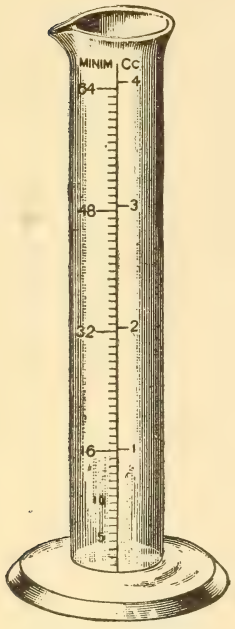

Figure 59. Minim Graduate Measure.

Where directions are given in drops, a knowledge of the difference in the sizes of drops is requisite. A drop of water and a minim of water are the same, but it requires two drops of alcohol or spirits to equal one drop of water when both fall from the same dropper. A drop of glycerine or syrup would be much larger than one of water, on account of its extra density and adhesiveness. Even drops of water vary in size. A drop of distilled or well-boiled water, from which all lime salts have been precipitated, is much lighter, will adhere to the dropper longer, and consequently is much larger than a drop

loaded with salts. The same rule applies to pure alcohol or spirits, and those loaded with medicines, as are tinctures.

Again, drops vary in size according to the size and shape of the point from which they fall; as for instance, a drop from the point of a pin would be much smaller than one from the end of a finger.

To be exact in this matter, a minim graduate (Figure 59), marked and numbered on the side, should be used. This shows the number of minims in a drachm, or any section of a drachm. Where such a measure is not at hand, a dropper (Figure 60) tested by the druggist to show that it will measure sixty to sixty-five drops of spring or river water in a drachm minim measure, is all that is requisite.

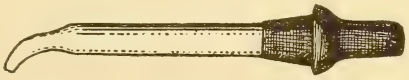

Figure 60. Dropper for medicines.

Where a mother has neither of these measures, she can meet the difficulty and be practically safe and correct by dropping from the bottle containing the medicine. If this has to be often repeated, the cork should be grooved slightly on two opposite sides, as in Figure 61. When the cork is loosened in the neck of the bottle, it allows air to enter on the top groove and medicine to flow out through the lower one as the bottle is turned over. The size of the grooves controls the rapidity of the dropping.

Figure 61. Grooved Cork for dropping medicines slowly.

Where only an occasional dropping is required, the ordinary cork should be withdrawn and held against the lower lip of the bottle and a little lower, as in Figure 62. The

drops will then fall from the lower edge of the cork just as rapidly as you desire, when you raise the bottle.

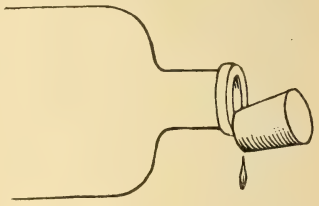

Figure 62. Showing how to drop medicine.

Safety is secured in all cases by giving only small doses of strong medicines and repeating them in an hour until the desired effect is produced. As all medicines are given for an effect, and as an hour is sufficient to show the effect of the last dose of soothing or poisonous medicine, it is safe then to repeat a full or half dose, as the condition of the child indicates.

Teaspoons and tablespoons are commonly used for measuring larger doses. They vary greatly in size, and also vary greatly in different hands, according to the fullness of the spoon. The following table shows the size of the different measures used in giving medicines:

One drop of water=1 minim of water or 2 drops of spirits or tinctures.
One after-dinner coffee spoonful=30 minims, 30 drops of spring water, half a teaspoonful, or half a fluidrachm (fl. ℥ ss).
One teaspoonful=60 minims, 60 drops of water, or 1 fluidrachm (fl. ℥ i).
Two teaspoonfuls=1 dessertspoonful or 2 fluidrachms (fl. ℥ ii).
Four teaspoonfuls=1 tablespoonful or ½ fluidounce (fl. ℥ ss).
Two tablespoonfuls=1 fluidounce (fl. ℥ i).
Four tablespoonfuls=a wineglass or 2 fluidounces.
One tumblerful=½ pint or 8 fluidounces.

Figure. 63. Four-ounce Graduated Measure.

Where exact measures of these larger quantities are required, a druggist's four-ounce graduated measure (Figure 63) should be used.

No. 121. Dose List for Children One Year Old or Twenty Pounds in Weight.—As children usually treble their weight during the first

year, the child of six to eight pounds at birth weighs about twenty to twenty-two pounds when a year old. Mothers may be compelled at times to prescribe remedies when they cannot reach their physician. In such cases, by adjusting the dose by the weight of the infant and repeating once an hour or two hours, when needed, they can tide over many difficulties until medical help is obtained. The following doses are fixed for a child of twenty pounds.

Mothers should never wake a child to give it medicine, unless a physician orders it done. Except in head affections, sleeping is generally a desirable condition.

Dose for a Twenty-Pound Baby.

Acetanilid, gr., ¼ to ½. Every two hours while feverish.
Aconite, tincture, m., ⅛ to ½. Every hour while feverish.
Ammonia, aromatic spirits of, m., 2 to 5. Every half hour for weakness.
Antimony, wine of, m., 2 to 5. Every half hour till vomiting.
Antipyrin, gr., ¼ to ½. Every two hours for fever.
Bismuth subnitrate, grs., 1 to 5. Every two hours for diarrhea.
Bismuth subgallate, grs., 1 to 4. Every two hours for slimy stools.
Brandy. (See Stimulants.)
Bromide of potash or soda, grs., 1 to 4. Every hour for nervousness or convulsions.
Calomel, gr., $\frac{1}{20}$ to $\frac{1}{10}$. Every hour for four doses, for foul stomach and stools.
Cascara cordial, m., 4 to 10. Every three hours for constipation.
Castor oil, fl. ʒ, 1 to 1½. Every six hours for constipation.
Cinnamon water, fl. ʒ, ½ to 1. Every hour for colic or vomiting.
Chalk mixture, fl. ʒ, ¼ to 1. Every two hours for diarrhea.
Chloral, grs., 1 to 2. Every two hours to produce sleep.
Chlorate of potash, gr., 1. Every two hours for sore throat.
Citrate of magnesia, grs., 5 to 15. Every two hours for constipation.
Codliver oil, fl. ʒ, ¼ to ½. Three times daily.
Dover's powder, gr., ⅛ to ½. Every two hours for cough, croup, and colds.
Epsom salts, grs., 5 to 10. Every five hours for constipation.
Fowler's solution of arsenic, m., ½ to 1. Three times daily as a tonic.
Gin. (See Stimulants.)
Ginger, tincture, m., 1 to 4. Every two hours for colic and diarrhea.
Hive syrup. (See Squills, compound syrup of.)
Iron, tincture, m., 1 to 3. Three times daily in syrup as a tonic.

Ipecachuana, syrup or wine of, m., 5 to 10. Every half hour for croup or cough.
Laudanum, m., ¼ to 1. Every hour for pain or diarrhea.
Liquorice powder, grs., 2 to 4. Every three hours till bowels move.
Magnesia carbonate, grs., 5 to 20. Every three hours till bowels move.
Malt extract, m., 10 to 20. After each meal to digest starch.
Manna, grs., 5 to 10. Every four hours till the bowels move.
Nitre, sweet spirits of, m., 5 to 8. Every three hours while awake for scanty urine.
Olive oil, fl. ʒ, ½ to 2. Every six hours till bowels move.
Paregoric, m., 3 to 5. Every hour, if needed, for pain or diarrhea.
Peppermint water, fl. ʒ, ½ to 1. Every hour for colic and gassy stomach.
Pepsin, gr., ¼ to ½. After each meal for indigestion.
Quinine, gr., ¼ to ½. Every two hours, while awake, for malaria.
Rhubarb, syrup of, fl. ʒ, ¼ to ½. Every four hours till bowels move.
Salicylate of soda, grs., ½ to 1½. Every two hours for rheumatism.
Senna syrup, m., 10 to 20. Every four hours till bowels move.
Soda bicarbonate, grs., 1 to 2. After each meal for sour stomach.
Squills, compound syrup, m., 1 to 5. Every two hours for cough and colds.
Stimulants—Brandy, m., 5 to 30. Every hour or two in sugar water.
Gin, m., 5 to 20. Every hour or two in sugar water.
Port wine, m., 5 to 40. Every hour or two in sugar water.
Sherry, m., 5 to 40. Every hour or two in sugar water.
Whisky, m., 5 to 35. Every hour or two in sugar water.
Tannic acid, grs. ½ to 2. Every two hours for diarrhea.
Whisky. (See Stimulants.)
Wine. (See Stimulants.)

No. 122. Proportionate Dosage.—Dosage in medicine is of great importance. As many medicines affect children differently from adults, greater care must be exercised in using some of them, and less care in using others, than is required in treating adults. All sleeping drugs must be used carefully and sparingly in children, as they are very susceptible to their effects, while they are not amenable to the poisonous effects of mercurials. As in feeding, so in medicines; the size of the child regulates the amount of medicine needed to produce a result. If the full dose of a drug for an adult weighing two hundred pounds is one teaspoonful or sixty minims,

A child weighing 10 pounds would require $\frac{1}{20}$ or 3 minims.

A child weighing 15 pounds would require $\frac{1}{18}$ or 4½ minims.
A child weighing 20 pounds would require $\frac{1}{10}$ or 6 minims.
A child weighing 25 pounds would require ⅛ or 7½ minims.
A child weighing 50 pounds would require ¼ or 15 minims.

No. 123. Medicine Closet.—Many mothers feel the necessity for having a few medicines, plasters, and dressings ready to use in cases of emergency, such as accidents, poisoning, and sudden sickness. Where a mother can give some time and thought to the selection of these remedies, she will be best prepared for emergencies, as the study in connection with selecting them will be a valuable lesson to her, and will impress their utility and use so firmly and clearly on her mind as to enable her to take prompt action when needed.

List of Suitable Articles for Medicine Closet.

External Medicines and Drugs.—Alcohol, *ammonia water*, *turpentine*, *chloroform liniment*, *soap liniment*, *extract of hammamelis*, *tincture of iodine*, boric acid, flaxseed meal, vaseline, benzoated lard, zinc ointment.

For Poisoning.—Vinegar, *tannic acid*, epsom salts, *sulphate of copper*, in three-grain powders, for poisoning by matches; *Jeaunel's antidote.*

Internal Medicines.—Whisky, gin, sherry wine, olive oil, glycerine, magnesia, castor oil, syrup of rhubarb, baking soda, sweet spirits of nitre, essence of peppermint, syrup of ipecac, hive syrup, *paregoric*, *laudanum*, quinine and quinine pills, one and two grain in size; soda mint, aromatic spirits of ammonia.

Appliances.—Four-ounce glass graduate, one-drachm minim graduate, a correct dropper, hard rubber syringe, four-ounce size; camel's-hair brushes, absorbent cotton, roller bandages, one and two inches wide and three to five yards long; surgeon's gauze, lint, old muslin and

linen, court plaster, rubber adhesive plaster, paraffin paper.

Many articles may be added to the above list and some of these may be omitted; but in a well-equipped medicine closet, all are requisite. All names in italics in the above list are poisons, and should be specially marked by a chain or heavy cord tied around the neck of the container and left hanging down the side. This will warn those using them of their contents, even when handled in the dark.

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